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AN ANALYSIS OF ONE HUNDRED POST-MORTEM EXAMINATIONS ON CHILDREN SUFFERING FROM TUBERCULAR DISEASE, WITH NOTES ON SOME SPECIAL FEATURES OF THE PATHOLOGY AND PATHOLOGICAL ANATOMY OF TUBERCLE IN EARLY LIFE.

(Concluded from p. 509.)

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PART II.

To pass now to some of the special features of tuberculosis in children when affecting particular parts of the body.

THORACIC TUBERCULOSIS.

It is well known that in children tubercle is rarely absent from the chest when present in any other part of the body. In the one hundred cases there were tubercles in both lungs and thoracic glands in sixty-eight, in the lung only in eight, but in six of these there is no note as to the condition of the glands. Another case was one of ordinary phthisis in a girl of eleven years, and in the remaining instance there were only a few very recent miliary tubercles in the lungs, so that practically, at least for young children, we may say that tubercle is very rarely met with in the lungs without being present in the glands also; certainly a marked contrast to what is observed in adults. The converse statement would not hold good, for there were thirteen cases in which the glands were affected without the lungs. In one case of tubercular meningitis the head

only was examined, and in ten no lesion was found in the chest, except in one some pleural tubercles, and in another old pleural adhesions. Rilliet and Barthez found forty-seven cases out of three hundred and twelve of tubercular disease with no involvement of the lungs, and also that as the age of puberty was approached affection of the lungs without the glands became more frequent.

It is now generally admitted that the ordinary chronic phthisis met with in adults is very rarely seen in young children; thus Goodhart writes, "It has certainly not been common in my experience to meet with changes which have excavated the lung from above downward, as is seen so constantly in adults," and Ashby and Wright (p. 231) say that "tuberculosis in young children rarely begins as does the phthisis of adults by a growth of tubercle and a condensation at the apices of the lungs, and a gradual extension downward taking place." Dr. Hector Mackenzie (*Medical Press and Circular*, February, 1892, p. 315) states the same fact from records obtained from various sources. My own experience is precisely similar; it is excessively rare in young children to meet with tubercular disease beginning at the apex of a lung and slowly extending downward. The cases in which I did meet with it were girls aged eight, eleven, and twelve years respectively, in whom the conditions were beginning to approximate to those of adult life. Nevertheless the fundamental identity of tubercular lung-disease at all ages is undoubted, and this, I think, constitutes a further argument in favor of Dr. Kingston Fowler's recommendation to abolish the old clinical term phthisis, which in the light of modern pathology has acquired too restricted a significance, and substitute the name pulmonary tuberculosis, which, in children, would for the most part be either miliary or caseous in type.

The frequent origin of pulmonary tuberculosis from caseous bronchial glands, an origin certainly extremely rare in adults, has been already fully discussed, but very many cases do of course begin in the lungs, though it seems useless to attempt to determine the relative frequency of the two forms on account of the number of very advanced cases met with in which the mode of origin could not possibly be ascertained with any certainty. The marked tendency to general and irregular distribution of the tubercular mischief in the lungs is, however, extremely noticeable, for though perhaps in the majority of cases the disease tends to be more advanced in the upper than in the lower lobe, there seems to be really no special tendency towards involvement of the apices. Large softening caseous masses are often found in most unusual positions, quite apart from any extension from the glands, and sometimes completely isolated; a solitary caseous nodule was, for instance, found several times in the posterior border of the lung, either in the upper or in the lower lobe.

The tendency to caseation even while the tubercles are still extremely small is so well known as not to call for further note, but it is important to recognize the equally rapid softening of the caseous material. Cavities are said to be rare in the pulmonary tuberculosis of children, but I found them

in no less than twenty-one cases, besides several others in which they were present at the root of the lung only, and evidently produced simply by broken-down glands. The frequency of excavation is, in fact, easily explained by the rapidity with which softening takes place, for as the tubercles are often caseous when only just visible to the naked eye, so when not much larger they may begin to soften and form potential cavities. Nevertheless there is no doubt that clinically excavation can comparatively seldom be detected during life, and the post-mortem appearances fully explain this, for, in the first place, the disease is often so diffused through the lungs and its course so acute, not to mention the frequency of a rapidly fatal outbreak of general tuberculosis, that there is not time for the formation of cavities large enough for recognition during life; and, secondly, they are in children often situated in unusual and inaccessible positions,—many at the root of the lung, others at the base, some in the centre of a lobe, comparatively few at or near the actual apex; and if, as is so often observed, cavities are found post mortem in cases of adult phthisis, which gave no certain evidence during life, even though situated in an ordinary and very accessible position at the apex, much more likely is it that the small vomicæ which form in any part of the lungs in children should go unrecognized. Large cavities at the apex of a lung, such as are so common in adults, are rare in young children, although met with in those approaching the age of puberty. It is well known that in the ordinary phthisis of adults the actual conditions present are in advance, both as regards extent and stage, of the physical signs; much more is this the case with the extremely irregular pulmonary disease of young children; mischief spreading in from the root of the lung may for a very long time hardly give any definite signs, and most extensive disorganization may be found after death which was hardly suspected during life.

It is not necessary to give any detailed description of the post-mortem appearances of pulmonary tuberculosis in children, more especially as I entirely agree with Dr. Goodhart's classification into four groups, the first two being by far the most common,—viz.:

1. Miliary tuberculosis.
2. Conglomerate gray and softening tubercle.
3. More chronic, with cavitation and fibrous change.
4. Cheesy solidification.

But such classifications are, after all, necessarily arbitrary, every possible intermediate condition or combination of conditions being met with. I have seen but one marked example of that peculiar condition, cheesy solidification, the conversion of an entire lobe (in that case of both upper and middle lobes) into a soft caseous mass, but, although presenting a very striking appearance, it is probably merely the result of the rapid aggregation of smaller caseous nodules, and is only another illustration of the extreme rapidity with which caseation occurs in childhood.

Pneumonia is said by Dr. Charles West to be a common complication of pulmonary tuberculosis; in three of my cases it was the direct cause of

death, besides several others in which it led to a fatal issue where there was tuberculosis in other organs, though not in the lungs.

The tubercular changes in the bronchial and tracheal glands have been already described, and I need only add that in two cases softening glands were found to have perforated the lower end of the trachea, and in one the right bronchus, without, however, causing any serious symptoms.

Tubercular laryngitis I have seldom, if ever, seen in early life, and most writers on children's diseases say it is rare, but Dr. Hector Mackenzie (*Medical Press and Circular*, February, 1892, p. 316) states that he has met with it in fifteen out of thirty-five cases in children; the discrepancy is probably due to the fact that those he refers to were of an average age considerably above that of my cases.

Tubercular pericarditis I have not met with; Henoch says, "Tuberculosis is to be regarded as a frequent cause of pericarditis in childhood," but in this country the recorded cases are rare. Dr. Sansom, who reports a case (*British Medical Journal*, February, 1879, p. 1021), refers to it as a very rare lesion, and Rilliet and Barthez say the same, only twice in three hundred and twelve cases did they find it marked. A few examples have been shown at the Pathological Society (*Transactions*, vols. xii., xxvi., and xliii.).

ABDOMINAL TUBERCULOSIS.

This in children is chiefly of importance in relation to the intestines, mesenteric glands, and peritoneum.

In one case the abdomen was not examined, and in twenty no tubercles were found in any part of it. In the liver, tubercles—in all cases miliary—were found in thirty-six cases; in the spleen in fifty-one, varying in size from minute granulations to closely-packed caseous masses; occasionally they were found in the spleen and in no other abdominal organ. The kidneys contained miliary tubercles, generally few in number, in twenty-four instances, and in one other death occurred from advanced double renal tuberculosis, the ordinary so-called scrofulous kidney. The above figures do not include cases in which tubercles were found only in connection with the peritoneal coat, as a part usually of their general diffusion over the peritoneum.

Tubercular ulcers of the intestine or tubercles in the submucous coat were found in fifty-six cases, in four in the large intestine only, in twenty-eight in the small bowel alone, and in twenty-four in both; in three other cases the intestines were not examined, but tubercles were present in other abdominal organs.

The ulcers were usually quite small and recent; in only twelve cases were they large and probably of considerable duration.

The mesenteric glands were affected in fifty-four cases; in forty-three together with intestinal ulceration, in one with tubercular peritonitis only, and in ten without either. On the other hand, in ten instances intestinal ulceration was found without any visible glandular changes, but in nine of these the lesion was exceeding slight and recent, the other being a girl, aged

eleven years, who died of ordinary chronic phthisis. In three other cases there is no note as to the glands. Certainly disease of the mesenteric glands, sometimes both extensive and advanced, without any intestinal ulceration, seems not uncommon, whilst the converse condition of extensive ulceration without glandular affection is equally rare, a condition exactly parallel to that already described in regard to the lungs and thoracic glands.

Well-marked tubercular peritonitis existed in seven cases, all of the chronic type, with extensive adhesions; in one there was a fecal fistula at the umbilicus, with a large though localized abscess cavity behind the abdominal wall, into which tubercular ulcers of the small intestine had perforated in more than a dozen places. In another an abscess, containing half a pint of pus, was found pointing at the umbilicus; this did not communicate with the bowel, and was probably due solely to breaking down of caseous matter in the peritoneal cavity. In all seven cases the mesenteric glands were caseous, in four intestinal ulceration was extensive, in two slight, and in one absent. The youngest child in the series was one and three-fourths years, and in the twelve cases of deep intestinal ulceration only one was under one year old, and that one had acute pulmonary tuberculosis; an illustration of how rare in infancy is true so-called "consumption of the bowels," apart from general miliary tuberculosis, however frequently it may figure as a diagnosis in cases of simple marasmus from improper feeding.

My cases show no instance of acute tubercular peritonitis; in fact, I believe very many of these recover completely, a view supported by a rapidly-increasing body of evidence (*vide* paper by Dr. Herbert Hawkins, *St. Thomas's Hospital Reports*, vol. xx.). One case of tubercular peritonitis in a girl, aged seven years, is especially interesting as showing a condition rare in children, though much commoner in adult females,—viz., extension along the genital passages: the uterus was distended with thick caseous pus; the right Fallopian tube was converted into a series of caseous nodules, some adherent to surrounding parts and beginning to soften; the left tube showed the same changes less advanced; ovaries normal; whether the primary lesion was in the peritoneum or the uterus seemed doubtful. In the *Annales de Gynécologie*, June, 1878, Dr. Talaman records a very similar case,—a girl, aged six years, died of tubercular meningitis; uterus three times the normal size, and contained a clear green viscid fluid like muco-pus; its cervical orifice was closed by tubercular ulceration. The Fallopian tubes were obliterated. The ovaries were surrounded by thick caseous exudation and appeared indurated, irregular, and enlarged to the size of those of a young adult. The portions of the tubes adjacent to the ovaries presented tubercular degeneration of the mucous membrane, whilst the uterine ends of the tubes remained normal.

CEREBRAL TUBERCULOSIS.

Tubercular meningitis was found in thirty-seven cases, in twenty-six as a part of a general miliary tuberculosis, in eleven alone, except for a caseous

focus. Only in the latter class of cases can recovery conceivably occur, but probably in the majority, at least of those who get well, the symptoms are due really to a totally distinct condition,—posterior basal meningitis, non-tubercular and not necessarily fatal, though undoubtedly often confused with the tubercular form. In five or six other cases a few small scattered tubercles, which had not set up any meningitis, were found in the pia mater. In ten cases the cranial cavity was not examined, but in none was there any reason to suspect any tubercular lesion in it. In twenty-two at least of the thirty-seven cases caseous thoracic glands formed the primary focus of infection, and in five others disease of the lung itself was probably primary.

Caseous tubercular tumors were found in the brain in seven cases, in children varying from eleven months to seven years old; in four in the cerebellum only, in two in the cerebellum and also in the hemispheres, and in one in the right cerebral hemisphere alone; in four instances the tumors were solitary and in three multiple. In all there was advanced tubercular disease in the chest and abdomen, in three tubercular meningitis, and in one a few scattered tubercles in the pia mater, which had not started any inflammation. The tumors were all of hard caseous material, though sometimes beginning to soften in the centre; they shelled out very readily from the brain-substance, and varied in size up to that of a large walnut. In no case was the existence of such a tumor suspected during life. The above facts tend to show that successful operative measures for these cases must be very rarely possible.

A few words may be added in conclusion as to the possibilities of cure in the tubercular diseases of children, though I cannot bring forward much evidence on this important subject. At the same time we ought not to suppose, because at autopsies in children tubercles are commonly found in all parts of the body, that recovery is therefore almost impossible; there is good evidence to show that local tuberculosis is often recovered from,—just as many tubercular joints get well without operation,—and the general distribution must, as a rule, be quite a late phenomenon. One difficulty in proving this recovery is that after the first three years of life the death-rate in children from other than tubercular diseases is—apart from the acute specific fevers, which are not taken into a general hospital—comparatively small, and the probabilities are very great that a child with healed tubercular mischief will survive to adult life, so that, with rare exceptions, the pathological evidence of the curability of tubercle in children must depend upon finding old healed tubercular mischief in those who have died from a recrudescence of the disease.

Another difficulty is that it may be impossible to say, when some old lesion is found, whether it was originally tubercular or not, all specific characters having entirely disappeared; this is especially so in regard to adhesions, and also at the apex of a lung a small fibrous scar may represent a collection of obsolescent miliary granulations. It has even been conclusively shown that all evidences of a well-marked tubercular peritonitis may com-

pletely disappear (*vide* paper by Mr. Lawford Knaggs, read before the Clinical Society of London, November, 1892, and discussion after). Furthermore, it is excessively easy to overlook an old obsolescent cheesy or cretaceous mass in a lymphatic gland. There can be little doubt that many obscure illnesses in childhood are due to tubercular deposition, with subsequent recovery, either temporary or permanent.

To refer now to cases in which evidence of healed tubercular mischief was found. In a child aged one and a half years the upper lobe of the right lung was firmly adherent, much shrunken, very tough, and in the lower part showed small, dry, branching, healed cavities; caseous tubercles were found in many parts of the body and recent gray granulations throughout the right lung. In another case, aged two and a half years, the right upper lobe was firmly adherent, much shrunken, extremely tough, and traversed by grayish bands of fibrous tissue; the thoracic glands were caseous, and death was due to tubercular meningitis.

Pleural adhesions can hardly be accepted as evidence of old tubercle in the absence of pulmonary mischief, but adhesions in the peritoneal cavity are of much greater import in children, as they are unlikely to be due to other than tubercular causes, and, as already mentioned, simple adhesions and bands may constitute the only remnant of peritoneal tubercle. In a boy, aged two and one-half years, both liver and spleen were firmly adherent to the diaphragm and a few of the mesenteric glands contained old caseous and calcareous foci; a similar form was found in one of the bronchial glands. The cause of death was summer diarrhœa and vomiting. No definite history was obtained, but I am inclined to think that the child had recovered from an attack of tubercular peritonitis. In a boy, aged four and one-half years, who died of tubercular meningitis, the liver and spleen were adherent to the diaphragm and the left lung to the chest-wall; miliary tubercles were found in the lungs and thoracic glands. In two other cases the spleen was adherent and there were tubercles in other parts of the body, but whether these adhesions were tubercular in origin seemed doubtful.

THE CAUSATION OF THE DISEASES OF WOMEN.

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WITHIN recent years activity among gynæcologists has taken the form of improvement in the technique of operations; and as an outgrowth of the large number of operations which have been performed, the pathology of diseases of women has likewise been improved. Comparatively little has been written concerning the causation of the diseases of women, although

the subject is one of great importance, in view of its bearing upon preventive medicine. Only as the causes of disease are made known to the profession at large is it possible to take measures for their prevention. And in gynæcology, especially, prevention is far better than cure.

The principal causes of the diseases of women are:

1. Imperfect development of the sexual organs.
2. Gonorrhœa.
3. Septic inflammation following childbirth.
4. Lacerations due to childbirth.
5. Miscellaneous causes, including constipation, erroneous habits of life, and errors of dress.

1. IMPERFECT DEVELOPMENT OF THE SEXUAL ORGANS.

The influence of imperfect development of the sexual organs as a cause of disease of women cannot well be over-estimated. At the present time not so much is said of the influence of this factor in producing disease, because it has been more or less lost sight of since tubal and ovarian pathology has so much occupied the attention of gynæcologists. The experience of every observant practitioner demonstrates the prevalence of imperfect development, and also its influence in producing various diseases of women. As a rule, when the development of the sexual organs is arrested the development of the body, as a whole, is also interfered with. Such women, almost without exception, belong to the class of neurotics, and they are especially liable to all manner of neuroses, including, especially, chorea, headache, and neuralgia. The most striking signs of this condition are the late development of puberty, the imperfect and painful character of menstruation, and the fact that the history of semi-invalidism, almost without exception, can be obtained. Puberty is often delayed, even as long as the eighteenth or nineteenth year, or longer. Menstruation is always painful. The pain belongs to the type of so-called ovarian dysmenorrhœa; that is to say, it begins one or several days, or even a week, before the menstrual flow, and is felt especially in the ovarian regions. Reflex neuroses are common accompaniments, especially headache, disordered digestion, or even sick-headache. Uterine dysmenorrhœa, due to the undeveloped condition of the uterus (especially of the cervix), which is in general sharply anteflexed, is frequently present. This is indicated by its paroxysmal character, and by the fact that, as a rule, it is much less marked after the flow has become fully established.

The reason why the development of the sexual organs of girls becomes arrested is not absolutely demonstrated. The influence of modern education as a cause has been much dwelt upon, and the evidence in support of this theory is very strong. The influence of the crowded courses and frequent examinations in our schools in developing the nervous system at the expense of the rest of the body, and later in breaking down the tone of the nervous system through overwork, has been abundantly proven. The

emotional side of the female character likewise is stimulated. As a result of these conditions the digestion of growing girls is apt to become deranged, and their sleep likewise to be disturbed. As a further consequence anæmia and depraved nutrition follow, aggravating the neurotic conditions already engendered, and thus completing the vicious circle. When such girls arrive at the age of puberty, especially if at the time they are being crowded with a multiplicity of studies to enable them to enter a fashionable finishing school, the demands upon the nervous system to enable them to accomplish their tasks are such that the processes which are necessary to bring about the proper development of the sexual organs are not brought into play,—enough vital force is not left over to accomplish this result. The testimony of urban practitioners is unanimous upon this point, hence it must be considered as established that too great mental occupation directly hinders the development of the sexual organs, and not only that, but at the same time breaks down the tone of the general nervous system.

Other causes, however, must be considered. Some of the most marked cases of the arrested development of the sexual organs which have come under my notice have been among the poor. These girls not only had not been forced at school, but in not a few cases they had never been to school. In some of them it seemed to me that the cause was too early and too laborious work, especially in mills. I have had numerous patients among mill operatives who had gone to work as children in mills, and who had worked full-time during the years when the greatest development takes place. In these girls it was probable that a lack of fresh air, of out-of-door exercise, and an insufficiency of nutritious food, together with too much work, were at the bottom of the difficulty. A curious class of cases but little understood is that in which extreme corpulency is present. I have seen numerous cases in which menstruation was tardily established, never perfectly performed, and which ceased or became scanty and irregular between the twentieth and thirtieth years. Whether the imperfect character and early cessation of menstruation was due to obesity, or whether the obesity was due to the absence of menstruation, I have never been able to satisfy myself. However, my own experience fully confirms the current opinion that obesity bears a certain relation to scanty and imperfect menstruation. The development of the sexual system in women is one of the mysteries of nature, and the exact forces which bring it about will probably never be perfectly known; but it is rational to believe that the existence of good health about the time of puberty has much to do with its proper development. The care of growing girls, particularly between the ages of nine and sixteen years, is a subject of the utmost importance, and the profession has no more urgent duty than to instruct mothers concerning the importance of the proper care of girls during that period. Girls who are inclined to be neurotic, and whose digestion and nutrition are at fault, should not be treated in the same way as their stronger and more phlegmatic sisters. Their duties at school should be lightened, they should be more in the

open air, and any functional disease which may exist should be cured. In this way some surplus vital force may be stored up to be called upon when necessary in the development of the sexual system. Also, when menstruation fails to appear at its accustomed time especial care is necessary. It is at this time that therapeutics has the best opportunity to influence the patient. The health of all such girls should be carefully inquired into and all indications for treatment should be met. In particular, the administration of iron, arsenic, and strychnia and out-of-door exercise are to be commended. Such cases should not be lost sight of until menstruation is fully and perfectly established. I feel confident that if this plan be carried out there will be fewer cases of dysmenorrhœa and sterility upon the one hand, and of laceration of the cervix and perineum upon the other, and also fewer cases of chronic ovaritis and ovarian cystomata. I have purposely not made mention of the higher grades of imperfect development, and of the cases in which one or more of the sexual organs are entirely absent. These cases belong to a different category, from the stand-point of practical medicine.

2. GONORRHŒA.

The fact that gonorrhœa is a disease of women has, of course, been known for centuries, but a full knowledge of the course and results of the disease is a matter of the immediate present. Bernutz was the first author who had a proper conception of the disease (about 1850). His knowledge was acquired, as most of the exact knowledge of medicine has been acquired, by the post-mortem study of cases. As physician to the Lourcine Hospital, where he had a large venereal service, he had ample opportunity to study the disease. In his analysis of the ninety-nine cases of pelvi-peritonitis upon which he bases his exposition of the subject, he gives, as a cause of the condition, gonorrhœa in twenty-eight cases. Forty-three are considered to be puerperal, twenty menstrual, and eight traumatic. Of the remaining twenty-eight non-puerperal cases there can be no question, when reading his report in the light of modern knowledge, that almost all of them were gonorrhœal. Bernutz, who was a very careful and accurate observer, cautions his readers against drawing the conclusion that so large a proportion of cases of pelvi-peritonitis (inflamed tubes and ovaries with secondary peritonitis) are gonorrhœal in origin. He states that in his opinion the reason why this proportion existed in his cases was owing to the character of the hospital in which they were observed.

Bernutz fully recognized the fact that gonorrhœa not only involves the vulva, urethra, vagina, and womb, but also the Fallopian tubes, the ovaries, and the peritoneum. He reports numerous cases amply demonstrating these facts, and treats the entire subject in a most intelligent manner. His observations, however, failed to make much impress upon the profession, and it was not until Noeggerath, in 1873, published his paper on "Latent Gonorrhœa in the Female Sex," that attention was called to the very serious rav-

ages of gonorrhœa in women. Prior to that time gonorrhœa was looked upon as a mere trifling vulvo-vaginitis, of importance principally because of the fact that the disease might be communicated to men. The views of Noeggerath encountered much opposition, and their spirit was not fully accepted until their truth was demonstrated by the work of the modern abdominal surgeons. It is now fully established that gonorrhœa is one of the most important causes of uterine, tubal, ovarian, and peritoneal inflammation. Exactly what percentage of cases of inflammation of the uterine appendages is due to gonorrhœa has not been determined, although unquestionably the percentage is not inconsiderable. The opinions and experience of surgeons differ widely with reference to this question, and there is good reason to believe that the percentage depends upon the character of the community in which the surgeon resides. Urban communities containing large numbers of the poor and the vicious, and of the rich and immoral, undoubtedly have a higher percentage of cases due to gonorrhœa than rural communities having a more decent population.

3. SEPTIC INFLAMMATION FOLLOWING CHILDBIRTH.

The results of septic infection in childbed have been so prominently dwelt upon since the days of Oliver Wendell Holmes and Semmelweis that one cannot, at this time, hope to offer any new ideas upon the subject. Increasing experience only serves to demonstrate the serious results of this accident. It is unnecessary to refer here to fatal puerperal septicæmia. We shall concern ourselves only with those cases which have not had a rapidly fatal termination, and which concern the gynæcologist as much as or more than the obstetrician. Septic vaginitis, endometritis, and metritis are well-known forms of puerperal inflammation. They frequently persist and require treatment after the puerperal period. Aside from the rapidly fatal cases, the most serious result of septic infection during labor is the spread of the septic inflammation to the uterine appendages, giving rise to salpingitis, ovaritis, and peritonitis. This condition probably at times ends in perfect recovery. More usually it results either in chronic inflammation of the appendages, with the formation of adhesions to the neighboring structures, or in collections of fluid—serum, blood, or pus—in the tubes or in the ovaries. The relative frequency of puerperal septic inflammation and of gonorrhœa as the cause of inflammation in the uterine appendages is a mooted point. Most surgeons believe that the puerperal inflammation is by far the more frequent cause; others hold that gonorrhœa is the more frequent cause, and they point out that inflammation of the uterine appendages following labor need not necessarily be puerperal in origin, because the puerperal inflammation itself may have been set up by a pre-existing gonorrhœa. That this last claim is to a certain extent a valid one my own experience tends to show; but many accurate observations must yet be made before it can be determined with what frequency existing gonorrhœa is the cause of inflammation in childbed.

Another but far less frequent result of puerperal infection is acute inflammation or abscess of the broad ligaments,—acute puerperal cellulitis and true pelvic abscess. Inflammation of the connective tissue of the broad ligaments formerly was believed to be the common form of puerperal inflammation outside of the womb, but when abdominal surgeons proved that what had been called *chronic cellulitis* in the *non-puerperal* state was in reality diseased uterine appendages, the tendency was to take extreme ground and to deny the existence of *acute puerperal* cellulitis and true pelvic abscess.

In addition to the varieties of puerperal inflammation described we have cases of phlebitis, and its associated condition, *phlegmasia alba dolens.*

As already remarked, it is not positively known what percentage of cases of tubo-ovarian inflammation is due to puerperal septic inflammation; but it is known that the percentage is a high one. Gonorrhœa and puerperal sepsis together cause fully ninety-five per cent. of all cases of tubo-ovarian inflammation. The importance of this fact from the stand-point of preventive medicine cannot be over-estimated. And the same is true of the curative treatment of gonorrhœa and puerperal septicæmia. If both these conditions were treated early and vigorously, and if the treatment were continued for a long time until the gonorrhœa was cured, and the results of the puerperal sepsis removed so far as possible, there would be far fewer cases of chronic pelvic inflammation. Under the present methods of practice it is the disease which the gynæcologist is called upon most frequently to treat.

4. LACERATIONS DUE TO CHILDBIRTH.

Lacerations due to childbirth constitute an important class of the diseases of women. The relation of lacerations of the cervix uteri to subinvolution of the pelvic organs, especially of the womb, and to endometritis, has been made known through the labors of American gynæcologists, especially Dr. Emmet. For a time after the observations of Dr. Emmet were made public there was a tendency to magnify the importance of lacerations of the cervix, and succeeding that a reactionary tendency to make light of the importance of this lesion, but the conclusion of the entire profession, based upon experience and common sense, practically supports Dr. Emmet in his original teachings concerning this lesion. It is not my purpose here to discuss the causes of lacerations of the cervix further than to say that my own experience is in accord with those who believe that many cases of lacerations of the cervix are directly due to the fact that the pregnancy has taken place in an imperfectly-developed womb,—the imperfect development being most marked in the cervix. Such a womb and cervix are not fitted to pass through the ordeal of labor unscarred. The cervix has to bear the brunt of the battle, and as a result of its imperfect development lacerates instead of dilating. This fact emphasizes the great importance of securing a full development of the womb.

Lacerations of the pelvic floor are of even more importance than lacerations of the cervix uteri. The giving way of the pelvic floor (the laceration of the levator ani and of the pelvic fascia) is at the bottom of almost every form of prolapse of the pelvic viscera. Cystocele, rectocele, and prolapsus uteri are due, almost without exception, to lacerations of the pelvic floor.

5. MISCELLANEOUS CAUSES.

Constipation plays an important *rôle* in the causation of some of the diseases of women. The fact that women very frequently suffer from constipation is well known. This is as true of young women as it is of their older sisters. Probably the principal reason for this is the in-door, rather inactive life which women lead; but an important factor is the habit which so many women form of having no regular time to have the bowels move. In this way the rectum is taught to tolerate the presence of fæces, which accumulate until the occurrence of headache, loss of appetite, and malaise (symptoms of fecal absorption) force the patient to secure a stool either by the use of an enema or by taking a purge. This over-filling of the rectum interferes with the circulation, and in this way promotes congestion of the pelvic viscera. This habit predisposes to the development of hemorrhoids, also to uterine and ovarian congestion. It is usually assigned as one of the causes of retroversion of the womb and of prolapse of the ovaries. I believe that it does predispose to both of these conditions. The full rectum can displace the cervix forward, and the straining at stool, especially if the bladder chance to be full, can topple the womb over backward. Relaxation and loss of tone of the pelvic tissues due to congestion also predispose to retro-displacement of the womb and to prolapse of the ovaries.

Constipation aggravates the symptoms due to every variety of pelvic disease. This is brought about partly by inducing pelvic congestion, and partly through the deterioration of the general health, produced by fecal absorption and the contamination of the blood, and by the loss of appetite and disordered digestion.

ERRONEOUS HABITS OF LIVING.

Erroneous habits of living favor the development of pelvic disease just as they favor the development of disease in other parts of the body. Pelvic diseases may be produced either by habits of indolence, inducing a sluggish circulation and an atonic condition of the tissues, especially of the muscular system; or by habits of luxury, which usually involve the preceding, with the addition of irregular hours, more or less dissipation, and the overloading of the stomach with rich foods and wines; or, on the other hand, by too laborious and continuous work, overtaxing the strength of the individual, and by greatly increasing intra-abdominal pressure, tending to displace downward the pelvic viscera,—in this way, at times, even in little girls producing complete prolapse of the womb.

ERRORS IN DRESS.

Errors in dress is a subject of large importance, but it is only possible here to touch upon it. The principal error in women's dress, as arranged at present, is that by it the waist is unduly constricted. As this is brought about by means of the corset, which not only constricts the waist but also constitutes a brace confining the lower part of the chest, and also the abdomen, several results are induced. The first and perhaps the most important is the interference with respiration. It has been conclusively shown that the type of breathing of the female, normally, is the same as that of the male,—diaphragmatic or abdominal,—but owing to the pressure of the corset the excursions of the diaphragm are limited, and the same is true of the lower ribs and the abdominal wall. The result is that the use of the corset has changed the type of women's breathing to the costal, or really the upper costal. The principle of accommodation doubtless largely diminishes the interference with the normal circulation which this alteration in the normal type of breathing would otherwise produce. The second result of this method of dress is to make continuous pressure upon the abdominal vessels, and thus to interfere with the return circulation from the lower half of the body,—promoting congestions in this region, which includes the pelvis. The third result is the displacement downward of the abdominal viscera, causing a protrusion of the lower anterior abdominal wall and forcing the intestines down upon the pelvic viscera. In this way the displacement of the pelvic viscera is favored. The effect of the pressure of the corset upon the muscles of the middle portion of the trunk, and the support which the corset gives in holding the trunk upright, thus doing away with the necessity for muscular action in supporting the trunk, is to bring about the partial atrophy (or at least an atonic condition) of these muscles. The loss of normal tone in the abdominal muscles changes entirely the normal condition of intra-abdominal pressure, favoring the displacement of the abdominal viscera, and takes away from the return circulation of blood in the abdomen one factor which normally is of great assistance in forcing the blood onward towards the heart.

Another error in the present mode of women's dress is the manner in which the skirts are fastened to the body. This is by means of bands fastened about the waist. The effect of this method is that the entire weight of the skirts hangs upon the abdomen and hips. In women having a somewhat protuberant abdomen practically the entire weight of the skirts is supported by the abdomen. This adds to the intra-abdominal pressure, and tends to force the contents of the abdomen into the pelvis. A further bad effect is that the waist-band of the skirts compresses the trunk at the smallest part of the waist, and adds to the ill effects of the pressure of the corset itself.

It has not been our purpose here to discuss the subject of practical methods of dress reform, but merely to point out the ill consequences of the

present mode. The principles which underlie dress reform are: 1. That the waist shall not be unduly constricted, so that the circulation and respiration shall not be impeded. 2. That the trunk shall not be encased in a brace, but that the muscles of the trunk shall be called upon to perform their normal function, which includes the sustaining of the trunk upon the pelvis and legs, and their proper part in the work of respiration, and in assisting in the return circulation of the blood. 3. That the weight of the clothing shall be supported upon the shoulders. These principles are unquestionably sound, and happily methods of dress based upon them have been so perfected that at the present time women can dress in accordance therewith and not sacrifice either taste or beauty.

PRACTICAL CONCLUSIONS.

My object in presenting this paper is not to offer anything new, but to cover in a systematic way the causes of the diseases of women in order to show their limited character, and that these causes are principally of a preventable character. If I have succeeded in doing this, it follows that, if proper attention were paid by the profession to the prevention of the causes which produce the diseases of women, these diseases could be very greatly restricted.

If proper attention were given to growing girls, especially about the time of puberty, and a more normal development of the sexual organs secured; if gonorrhœa were more vigorously treated, and if the subjects of that disease were kept under observation until all abnormal discharges were arrested, and proper instructions concerning the abstention from sexual intercourse were given; if antiseptic midwifery were faithfully and efficiently practised; if lacerations of the cervix and perineum were early repaired; and if full instructions concerning the ill effects of constipation, improper dress, and erroneous habits of living were given, the prevalence of the diseases peculiar to women would be very greatly restricted. I believe that this is to be the next great advance in diseases of women. Gynæcologists must bring home to the general practitioner the fact that the diseases of women are largely preventable, and make him feel his responsibilities both as to their production after present methods of practice and as to the possibilities of their prevention after improved methods. When the family physician realizes that it lies within his power very largely to prevent disease among the women of the families committed to his care, his sense of moral obligation will spur him on to do his full duty in this matter. When that day comes the universal prevalence of disease among women will cease to be a reproach to preventive medicine.

THE LARYNGEAL MANIFESTATIONS OF RHEUMATISM.[1]

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To the student of medical history there is nothing more interesting than to trace the rise and fall of theories as to the pathology of our common diseases. Particularly is this true with respect to rheumatism. It is an old disease, one wide-spread and one of common occurrence. Maclagan has referred its cause to the entrance into the body of some miasm from without; Recklinghausen and Klebs to a micro-organism entering the system and acting specifically on the fibro-serous structures as does small-pox on the skin. Heuter particularized this view, maintaining that the definite channels of entrance for the germ were the orifices of the ducts of the sweat-glands. Through the latter they were conveyed to the blood and caused an endocarditis. The joint lesions were the result of infectious emboli incident to the cardiac condition. Latham found the starting-point of the malady in the hyper-oxidation of muscular tissue. The lactic acid theory of Prout is too well known to deserve more than mention. It is by no means universally accepted. The neurosal theory of Mitchell has had able advocates, and it is interesting to note that no less an authority that Jonathan Hutchinson regards rheumatism as a catarrhal neurosis, the exposure to cold and irritation of some area of skin or mucous membrane acting as the exciting factor. Still more recently, Riva has declared the pneumococcus of Fränkel to be the *materies morbi*. He regards not only endocarditis and pericarditis as rheumatic manifestations, but also pneumonia, pleurisy, cerebro-spinal meningitis, diplococcic septicæmia with localizations, and every other infection, either local or general, produced by the above-named organism.

Whatever elements of truth there may be in these various propositions, the exciting cause of rheumatism finds, by common consent, its origin in a perversion of the processes of assimilation and excretion, resulting in the formation of some unknown intermediate product or products of destructive metamorphosis. During the existence of such a condition, cold, the great exciting factor, acts directly upon either the vaso-motor or trophic nerves of the articulations, or else on the corresponding nerve-centres through an influence on the centripetal nerve-fibres.

Illustrative of one tendency of modern medicine is the fact that many writers seem inclined to refer all inflammations—even simple catarrhal—of

[1] Paper read by invitation before the Practitioners' Society of Newark, March 6, 1893.

the upper air-tract, and especially of the throat, to a rheumatic origin. This is an extreme view, and not one, I think, borne out by facts. In many instances no such diathesis can be found. In a paper read before the American Medical Association in Detroit last year, on the "Treatment of Acute Pharyngitis and Tonsillitis," the writer reported the statistics of one hundred and sixty-two cases with reference to this point,—viz.: In twenty-four, or fourteen and one-half per cent., there had been some marked rheumatic manifestation, joint lesions, chorea, growing pains, etc. In twenty-three, or fourteen per cent., there was a family history of the disease, while in one hundred and fifteen, or seventy-one and one-half per cent., there was no evidence of any rheumatic tendency whatever. Sajous states the truth in a sensible way when he says that rheumatic and scrofulous individuals are more predisposed to it (throat inflammation) than are others.

The larynx is, from many points of view, a remarkable organ. It has an intricate anatomy and a wonderful physiology. It has also an immunity from disease which is little short of miraculous when we consider the deleterious influences to which it is exposed. From birth to death it is always functionally active. It is exposed to the entrance of all noxious vapors and foreign bodies. It has to ward off the assaults of infectious germs, and it constantly bears the brunt of sudden changes of temperature. Any inflammation in the vicinity may enroach upon its sensitive domain. To emphasize all, it is comparatively poorly protected. In its structure enter bone, cartilage, muscle, and mucous membrane, with their respective vessels and nerves.

In 1880, Archambault writing upon the general topic concludes as follows:

1. Acute laryngeal manifestations of rheumatism are more common than is generally supposed.

2. We may have morbid states either of the mucous membrane, articulations, muscles, or nerves.

3. Congestion of the mucous membrane is the most frequent and more easily detected.

4. The other forms are too uncommon and too little known to make a separate or thorough study of them.

He adds that there exists therefore the necessity of early and vigorous local treatment, particularly as the salicylates do not seem to afford relief as quickly here as they do in the commoner seats of rheumatism.

We may have, therefore, 1, acute rheumatic catarrhal states; 2, articular lesions at various sites; 3, chondral and perichondral affections; and, lastly, the so-called muscular rheumatism of the laryngeal muscles. With perhaps the exception of the third group these are all more common than is generally supposed, and this is my reason for bringing the subject to your attention at this time.

It is believed that in all these cases it is not beyond either the province or the skill of the general practitioner to make use of the laryngeal mirror

and to obtain a view of the interior of the larynx. A preliminary cocaine spray (ten per cent.) may be necessary, and for this purpose the phenol salt of cocaine is preferable.

Concerning the first group of cases, those of rheumatic catarrhs, we have to remember two facts with regard to simple exudative inflammations in this situation. The membrane rests on an unyielding bed, and therefore a slight swelling will considerably encroach upon the lumen of the passage. Moreover, the dry stage of the catarrh, which often elsewhere lasts but a few hours, is here frequently extended over three or four days, causing an aphonia which varies in severity with each individual case. We all recognize the fact that the constitutional symptoms of throat-diseases are frequently out of all proportion to the apparent severity of the local lesion.

The onset of an attack, due to rheumatism, is not different from that of a non-diathetic case. It may come as a sequel to some rheumatic outbreak elsewhere, or it may be a primary manifestation. In an ordinary case the invasion is sudden. There is intense pain in the larynx, soon followed by more or less febrile reaction. After a couple of days the pain may suddenly leave the throat and locate itself in the muscles of the neck, back, or limbs. Occasionally it may merge into a general articular affection. This sudden shifting of pain is characteristic of the affection. The odynphagia is extreme and out of all proportion to the apparent local condition. The congestion and swelling of the laryngeal mucous membrane are regularly not so intense as in the non-diathetic cases. The former may be general or may occur in streaks and patches. Slight hemorrhages are not uncommon, and the expectoration is generally mucous and glairy.

In the second form of laryngeal rheumatism we have a true articular affection, and the joint most frequently involved is the crico-arytenoid. This articulation has a triangular base concave from before backward. The arytenoid facet is oval and inclined towards the posterior superior border of the cricoid. The joint has a capsule and ligaments, with a true synovial membrane. The opposed surfaces are united by scattered fibres but little different from the capsule, but at the level of the upper part of the cricoid, near its superior border and external angle, one finds a resisting bundle, which is inserted into the inner and posterior face of the arytenoid near its base, constituting a true interarticular ligament. The joint has two movements: 1, rotation of the arytenoid upon the cricoid, produced by the lateral and posterior crico-arytenoid muscles; and, 2, that of total translation of the arytenoid, or its actual movement *en masse*, in which the action of the foregoing muscles is reinforced by that of the interarytenoid.

Naturally this articulation is subjected to the general run of joint maladies. De la Sota was the first to describe a case of primary inflammation after exposure to cold. Debrousses in 1861 was the first to admit the possibility of such a trouble being rheumatic. He reported the case of a woman aged twenty-seven years with articular rheumatism and pericarditis. On the fourth day of her sickness the larynx became involved, resulting in

severe pain, aphonia, and suffocative attacks. Death resulted in twenty days from gradual asphyxia. At the autopsy, the arytenoid cartilage on the affected side was found bare but not necrosed, and there was a reddish serous fluid in the joint cavity. Simpson and Liebermann have both reported cases of this nature arising in course of gonorrhœa, and regarded by them as cases of gonorrhœal rheumatism of the joint.

The clinical history of such a case follows that of an ordinary rheumatism. The local manifestations may precede or follow the constitutional symptoms. There is the usual chill-and-fever reaction. There is local pain and tenderness. There is a peculiar disagreeable sensation, especially on swallowing, on one or both sides, referred to the angle of the jaw, hyoid bone, or tonsil. This feeling can be relieved by pressure over the region of the articulation on the affected side. The pressure causes a gentle crepitation, generally felt but sometimes heard, and increased in intensity by swallowing. Inward pressure from the outside causes a perceptible movement inward of the affected arytenoid, and there is a circumscribed sensitiveness, produced by lateral pressure with the œsophageal sound *in situ*. The hand grasping the sound while the external pressure is made appreciates the inward movement of the cartilage, somewhat analogous to the so-called "glancing of the patella" in hydrops of the knee-joint. The crepitation is a confirmatory sign and not at all pathognomonic, as it can be elicited after chondritis, perichondritis, and senile atrophy of the joint. It can be produced also by pressure downward and backward on the upper border of the thyroid cartilage, though the latter itself is not sensitive. The diagnosis is not always easy when the amount of serous effusion is small. Some of our most painful cases of rheumatism of the larger joint show very little enlargement of the articulation. Major has noted in these cases, along the line corresponding to the level of contact between the articular surfaces, a deeper congestion of the mucous membrane than obtains in the surrounding parts.

Archambault calls attention to the fact that the general laxity of the submucous structures of the larynx might permit a joint inflammation to generalize itself and to cause even œdema of the glottis, thus masking entirely the original cause of the trouble. May not those rare cases of œdema glottidis occurring after peritonsillar inflammation (quinsy) find their explanation in this fact?

In other cases the congestion is confined to the lateral walls of the larynx, running thence up to the faucial pillars. It may be diffused or in streaks. The mobility of the joint is interfered with out of all proportion to structural change. Chorea, so called, of the vocal cords is not uncommon.

In cases of long standing ankylosis of the joint may result. The signs of this condition may be enumerated as follows: The size of the joint varies from hypertrophy to actual wasting. The symptoms depend upon the position of the arytenoid upon the cricoid and the corresponding position of the vocal cords. In full expiration or the position of phonation breathing is

somewhat labored, while the voice is but little changed. As a rule there is but little trouble in swallowing. The joint is generally enlarged, though the opposite is not impossible. External pressure is somewhat painful. On manipulation a roughness of surface is felt, and there is at the same time heard a distinct friction or gliding sound.

If the arytenoids are so fixed that the vocal cords stand midway between inspiration and expiration, inspiration is normal, but there is in expiration a leakage of air. Phonation is therefore interfered with, and we have early dyspnœa on exertion. Dysphagia is quite pronounced, leading to the danger of foreign-body pneumonia. Tenderness and the friction sound are elicited as before.

A differential diagnosis must be made between the abnormal conditions presented, respectively, between ankylosis and true muscular paralysis. From anatomical and physiological considerations the pictures presented by the different phases of the latter are quite distinct. Our ideas, though, regarding the innervation of the larynx are still in great confusion, and we cannot foretell just what position the cords and muscles will assume from any given lesion. Much stress must be laid on difficult deglutition as suggestive of ankylosis.

The topic of chondritis and perichondritis due to rheumatism need not long detain us, for these diseases never, as far as we know, arise primarily from the diathesis now considered. While perhaps a pathological possibility, it is not a clinical experience. Primary chondritis from any cause is, Bosworth states, unknown. The morbid process is originally perichondral, extending thence to the cartilage itself. Primary perichondritis probably does occur (cases reported by Newman and Jurasz), but regularly it is a sequel of local tuberculosis, syphilis, trauma, infectious diseases, etc. Semon believes that it may run its course without any acute signs or symptoms, gradually leading up to chronic ankylosis of the arytenoid cartilage. So far as rheumatism is related to the condition, the joint lesion is probably the primary one, and the chondral and perichondral lesions can be but secondary to its disorganization present,—in other words, in only the most severe forms of the disease.

Concerning the last variety of trouble, the so-called muscular rheumatism, as manifested in the laryngeal structures, let us recall to mind briefly the nature of this affection. It is commonly found in persons of the rheumatic diathesis, but is not confined to them alone. It is not believed to be a true inflammation. Such cases as have afforded a pathological examination have rarely shown any change. The pain has variously been referred to a hyperæmia of the muscle, to serous exudation into its substance, and to neuralgia of its nerve-filaments. In some instances the muscular state seems to be the sequel of a subacute joint lesion through the adjoining tendinous sheaths, the primary lesion thus disappearing. The effect remains after the cause is removed. It must also be borne in mind that the affected muscles themselves are not in a state of spasm. They are really in a relaxed

condition, held therein by the stiff contraction of surrounding and physiologically associated muscles. The latter act the part of a splint, as it were, and illustrate nature's uniform plan of giving as far as possible rest to an inflamed organ.

As has been said before, the innervation of the larynx is a very intricate problem. As fast as one series of experiments suggests a crystallization of our knowledge along definite lines another series completely redissolves them. It has been shown that the same methods applied to man and the lower animals give different results. Only the past year Livon has found that in dogs a gentle rhythmical stimulation of the fibres of the recurrent nerve leads to an opening of the glottis, while a strong and sudden stimulus causes its closure.

"Rheumatic paralysis," says McBride, is the name commonly given to cases of paresis pointing to loss of function of the recurrent nerve which recover. There is usually a history of distinct chill, and, under treatment, the vocal cord recovers free movement, which (he parenthetically remarks) it would probably also do without treatment. McBride does not believe that these cases can be diagnosed until recovery has taken place, because the presence of a small aneurism, or other tumor, can never be excluded by the negative result of a physical examination. A temporary enlargement of the intrathoracic glands is regarded as a causative factor in some of these cases.

Schmiegelow reports the case of a woman, aged forty, with the right cord in the cadaveric position for some days. There was a continued paralysis thereof for two years, during which time a cardiac complication developed. Then suddenly the cord resumed its mobility, without there having been previously noticed any gradual improvement.

Undoubtedly, rheumatism can cause any of the classical pictures of laryngeal paralysis. These are fully described and illustrated in the text-books, and need not be dwelt on here at length. It may be added that the rheumatic influence is more prone to localize itself in individual muscles than to affect symmetrical muscles on both sides.

In chronic rheumatic laryngitis there are no erosions or ulcerations anywhere noted, and but little congestion or swelling. The condition may be a manifest expression of a rheumatic diathesis, or it may be the first rheumatic storm the patient has ever passed through. Often the regions of the larynx and hyoid bone are the only painful sites. The pain, always slight, is inconstant and varies with the weather. It is increased by deglutition, and referred by patients to the greater cornu of the hyoid bone, base of the tongue, larynx, trachea, or even the lower part of the tonsil on the affected side. The voice becomes quickly tired. On inspection the redness may be diffused or unilateral. The mucous membrane over one or both arytenoids may be congested. The patients are often very anxious, fearing lest they have cancer. The diagnosis may lie between acute catarrh, neuralgia, syphilis, tubercle, malignant disease, and rheumatism. Acute catarrh will subside of itself in a few days. Syphilis gives its own preceding history,

and locally may reveal itself in erythema, the mucous patch, the superficial ulcer, the gummy tumor, or the deep ulcer. Primary tuberculosis of the larynx, though possible, is yet very rare. By the time the laryngeal structures have been invaded by the laryngeal deposit other parts of the body, and generally the lungs, have already displayed the danger signal. Malignant disease will early reveal itself as a somewhat clearly-defined tumefaction with a surrounding infiltration. The progression of the latter causes a speedy impairment of mobility. In the later stages we find broadly infiltrating irregular mass filling the laryngeal box, the great distortion of the parts, extensive ulceration, offensive odor, and peculiar secretion. The simple neuralgic larynx may appear entirely normal, but this particular anatomical region is unlikely to be alone affected. In fact, this latter condition is rather to be regarded as symptomatic than as a pathological condition *per se*.

Concerning treatment our knowledge is more definite. Nothing has yet been found superior to the salicylates for all these affections. The latest addition to the group, salol or salicylate of phenol, has proven in my hands of much value in all rheumatic throat affections. Reference may be again made to Archambault's statement that salicylate of soda does not afford relief as quickly in the crico-arytenoid articulation as it does in other joints. In the large series of cases of tonsillitis and pharyngitis reported in the writer's paper before the American Medical Association, salol was found to afford relief considerably earlier than the salicylate of soda. In the chronic form of laryngeal rheumatism, Ingalls has found most relief from three or four grains each of salol and extract of phytolacca (unofficial). The latter remedy (phytolacca decandra, U. S. P.) is a slow and persistent emeto-cathartic with some narcotic properties, as shown by the occurrence of drowsiness, vertigo, and dimness of vision. It is also an alleged alterative. The dose of the extract for the latter purpose should not exceed six grains. In other cases the bromide, iodide, and acetate of potash may be employed in varying combination. Guaiac and the oil of winter-green may prove of service, as also the tinctures of bryonia and cimicifuga. With the two latter remedies I have had no personal experience.

In acute cases of all varieties local treatment may do much to relieve the patient's suffering. Cold externally is indicated, though hot fomentations afford more relief to some people. Internally sedative inhalations, as compound tincture of benzoin, or application of aconite, of the astringent and metallic salts in solution, etc., are all serviceable. Ingalls especially recommends for the chronic forms a spray of morphine, carbolic and tannic acids, in glycerin and water.

We must carefully impress upon all persons of a rheumatic temperament the necessity of care as to clothing of body and feet, and as to the care of the skin. In the matter of foot-wear the average American, especially here in the North, is extremely careless. Thin-soled shoes are a common source of taking cold, and the constant wearing of rubbers over them is of

very little value, because it prevents proper aeration of and evaporation from the feet. Thick-soled shoes with felt or cork linings are in every way preferable. Patients should be instructed to bathe the throat and chest with cold water night and morning, and after the use of the drying-towel to thoroughly rub the skin with a coarse one. Regarding clothing, the use of woollen or silk is from every point of view to be advised. The ideas put forth by Jaeger are universally admitted to be correct, but many persons are unable, or profess so to be, to wear woollen next the skin. For such the employment of the Jaros hygienic underwear may be recommended. This wear is made of unspun wool caught into the mesh of a loosely-knitted cotton back in such a manner as to preserve unimpaired all the properties which make wool valuable as a clothing fabric. In the more expensive garments of this wear the framework is silk instead of cotton. The material is porous and allows free ventilation. Also much air is entangled in the meshes, and this prevents too rapid loss of heat by radiation.

In closing this paper I am well aware that nothing essentially new has been presented. It is, however, beneficial at times for us to review what we do know, and to realize that the development of special work in medicine has by no means relegated our ideas of diathesis in disease to the category of things no longer useful.

SUTURING THE TENDO ACHILLIS IN THE CORRECTION OF DEFORMITIES OF THE FEET.[1]

BY H. AUGUSTUS WILSON, M.D.,

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Experience has shown that in most of the deformities of the feet that require operative procedures for their correction the tendo Achillis demands section, and not infrequently the lengthening or shortening of that structure only is required.

It is clearly apparent that all remedial measures, to be ultimately and progressively efficient, must have for their object not alone removing the appearance of the deformity, by lengthening or shortening of tendons, but it is equally essential that the resulting strength of the tendon must be equal to the demands to be placed upon it.

The tendo Achillis communicates to the heel the power required to enable the arch of the foot to maintain the weight of about three times as many pounds as it exerts pounds of force. The leverage of the foot in walking is that of the second order of levers,—that is, where the weight is

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[1] Read before the Medical Society of the State of Pennsylvania, May 17, 1893.

placed between the power and fulcrum, the power being applied to the posterior end of the os calcis, the fulcrum being the distal extremities of the metatarsal bones, while the weight is imposed upon the astragalus.

Careful measurements of over a hundred approximately normal feet have resulted in showing that the average comparative distance from the end of the os calcis to the centre of the internal malleolus, and from that point to the end of the distal extremity of the metatarsal bone of the big toe, was as 1 to 3.

This adverse position of the weight in its relation to the power and fulcrum necessitates the use of a greater power moving through a small distance to lift weight equal to one-third of the power through a proportionally greater distance.

The powerful action of the gastrocnemius and soleus muscles would be less confusing if it could be disassociated from its attachment to the weight it is to lift. Let it therefore be assumed that the upper end or insertion of this muscle is made fast to some immovable body, and then its action in lifting the whole body will be apparent. A force of one unit applied to the power end of this lever would raise a weight of three units if the foot was reversed,—that is, if the tendo Achillis was attached to the tarso-metatarsal joints. This is the most common application of the second order of levers, because it enables a small number of pounds of force to move a larger number of pounds of weight, in proportion to its distance from the power and its approximation to the fulcrum. The advantage of less power is, however, at the expense of the arc of movement of the power end of the lever. Economy of space, even at the expenditure of increased power, often becomes necessary in the arts, and is well exemplified in the human foot.

This expenditure of power, equal to three times the weight to be moved, requires that the means of communicating the power should be equal to the maximum strain that might be required to sustain additional weights, and thus we perceive that the tendo Achillis is the most important and, at the same time, the strongest and broadest tendon in the body.

The great importance of the tendo Achillis in locomotion, as indicated by its breadth and strength, as well as by its mechanical function, demands that its strength and general utility, after operation, should be increased rather than lessened, and that the correction of the external appearance of a deformity should be secondary to a full re-establishment of the mechanical functions of the part.

The subcutaneous operation for lengthening the tendo Achillis, while it has had a brilliant career in assisting in the correction of deformities of the feet that were, previous to its adoption, corrected in part only, did not always fully meet the full requirements.

The gap between the divided ends of the tendons were filled by ultimate fibrous union, which yielded when there was full contractile power in the gastrocnemius and soleus muscles, and only failed to yield when those muscles were largely inactive from previous disuse.

PLATE I.

Fig. 1. Fig. 2. Fig. 3.

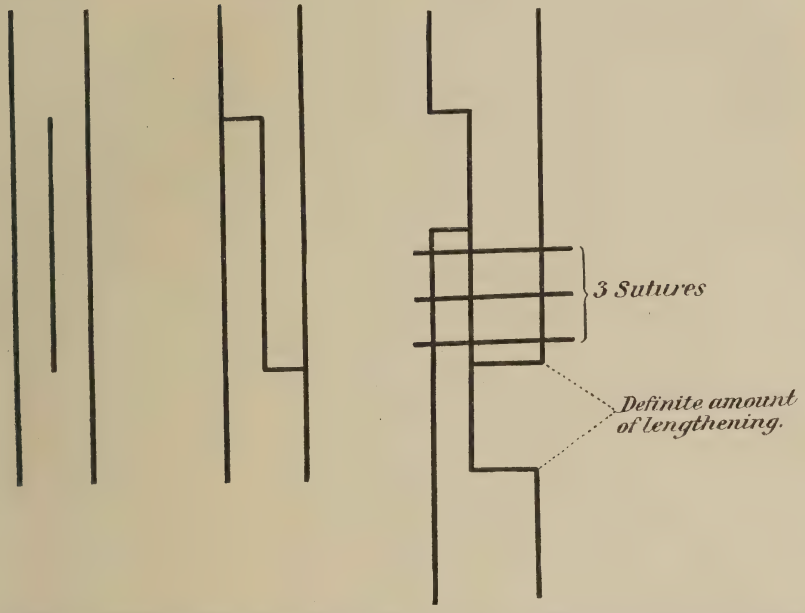


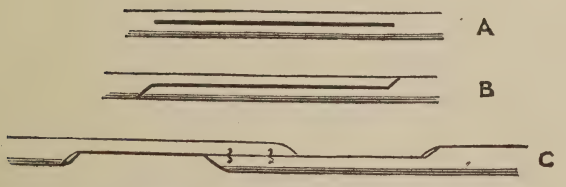
Diagram illustrating a new method of tenotomy, by which the tendons are lengthend to a definite extent, instead of the present hap-hazard method. (W. W. Keen, "Transactions of the College of Physicians," 1891, page 67.)

Fig. 1 shows the first or longitudinal section.

Fig. 2 shows the two transverse sections, each going through one-half of the tendon.

Fig. 3 illustrates the position of the sutures and the definite amount of lengthening.

PLATE II.



A, tendon split longitudinally; *B*, section completed by incisions at extremities of fissure; *C*, divided tendon elongated and sutured. (Anderson's method.)

PLATE III.

Fig. 1. Fig. 2. Fig. 3. Fig. 4. Fig. 5.

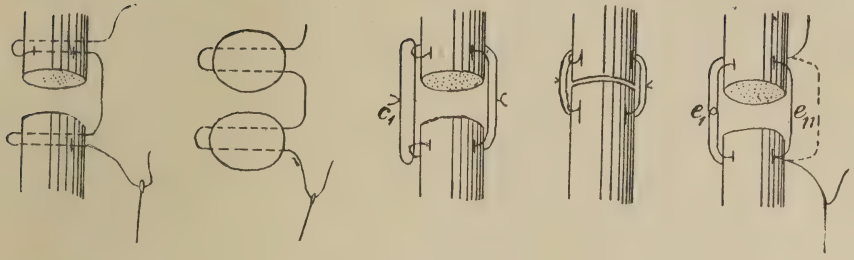
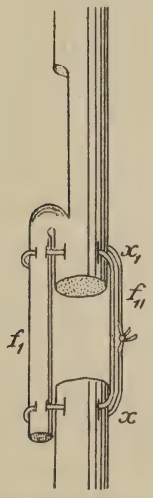


Fig. 6.



Reproduced from the *Centralblatt für Chirurgie*, No. 12, page 258, March 25, 1893.

Figs. 1 and 2 show the method of inserting the catgut suture so as to form the loop, into which are to be engaged the connecting material.

Dr. Trnka emphasizes the importance of the loop *c*, as shown in Fig. 3. A simplification, for the sake of quick adjustment, is shown in Fig. 5. Instead of forming the loop *c*, in Fig. 3, any proper material may be inserted, such as catgut or a piece of the tendon itself, turned down as shown in Fig. 6.

When the catgut used is thin, it can be tied as in Fig. 3; but when it is heavy, it should be sewed fast to both ends of the divided tendon, in the same manner as shown in Fig. 6.

It is strongly urged that sutures through the tendon should not be drawn so tight as to cause the nutrition of the tissues to suffer.

The disturbance of the repose essential to a perfectly solid union was clearly shown upon a patient upon whom I spliced the tendo Achillis under the local anæsthesia of cocaine; the contractions of the muscles increased the separation of the ends a full inch, making the gap two and a half inches, and this constant or voluntary contraction must make the uniting band attenuated.

It is impossible to disassociate the shrunken, atrophied, and often useless calf with the possibility of its being assisted in its retrograde by the weakened condition of the tendo Achillis divided in the often hap-hazard subcutaneous method.

If there was, prior to division of the tendon, an atrophy or enfeebled calf, analogy would indicate that favorable conditions would promote its growth and development until a full or approximately full usefulness could be obtained.

That the new band of union uniting the tendon is capable of stretching has become well established in cases that have required open section at some subsequent time. Several illustrations of this have come under my notice, in one of which the original separation of one inch had increased to two and one-fourth inches. The fibrous connecting-band was extremely thin, and so firmly bound to all the surrounding structures that a most careful dissection was required to lift it from its bed. It was found to be attenuated to such an extent that it was found impossible to use it in the effort to shorten the tendon, and recourse was had to a method of splicing, by taking parts of the original tendon.

In a large number of relapsed cases that have required subsequent division of the tendo Achillis, it has been found that it was practically impossible to find a tendon. The extensive amount of elongation so often seen after transverse fracture of the patella is still further evidence in the same direction.

The inaccuracy and, therefore, uncertainty of the results to be obtained by simple subcutaneous division made the reception of methods of accurately elongating and shortening tendons, by splicing, a boon that has been rapidly seized by progressive operators. Although asepsis prepared the way, surgeons were not prepared to take the advanced step of suturing tendons until time had elapsed to prove the benefits to be derived from the simple section through an open wound.

I desire here to acknowledge my personal indebtedness to Dr. W. W. Keen, of Philadelphia, from whom I first learned, on March 4, 1891, of the practical application of accurately lengthening tendons. On the above date Dr. Keen read before the College of Physicians of Philadelphia a paper entitled "A New Method of Tenotomy, by which the Tendons are Lengthened to a Definite Extent, instead of the present Hap-hazard Method."

In the opening paragraph of this paper Dr. Keen very gracefully attributes the suggestion of the method to the originator, as follows: "I owe

the suggestion which, I believe, I carried out for the first time anywhere, to the fertile mind of my friend Dr. S. Weir Mitchell, who has adorned every department of medicine which he has touched."

The patient, with post-hemiplegic contracture of the flexors of the fingers, was operated upon by Dr. Keen on November 29, 1890. The method of procedure was then described. "Each tendon was first split in the middle, one and one-quarter inches, and then, at the two ends of this incision, section of the opposite halves of the tendon was made. The two cut ends were then slid past each other and sewed together for a distance of half an inch, making three-quarters of an inch of lengthening." On December 19, twenty days after the operation, it is recorded, "She went home to-day. Her hand is in much better condition, though she cannot yet flex the fingers to any extent. The tendons are not torn loose, inasmuch as extension faradization flexes the fingers."

Thus the new method suggested by Dr. S. Weir Mitchell, and resorted to by Dr. W. W. Keen, was first published, and by many was referred to as the Keen method.

In the *American Lancet* for February, 1892, I published a clinical lecture entitled "Tenotomy by Open Incision for Talipes Equinus," in which I gave the credit of originating the operation to Dr. W. W. Keen, and I desire at this time to correct the published statement then made and since repeated.

By one of those curious coincidences of which there are so many illustrations, the desire for better methods has induced men in different parts of the world to arrive at precisely the same ends without the slightest knowledge of the other's work.

In the *London Lancet* for July 18, 1891, there is published the second of a series of lectures delivered at the Royal College of Surgeons on June 10, 1891, or three months after Dr. Keen read his paper before the College of Physicians, by William Anderson, F.R.C.S., entitled "Contractions of the Fingers and Toes: their Varieties, Pathology, and Treatment."

In this lecture he describes exactly the same operation on a patient in whom "the third, fourth, and fifth fingers of the right hand were found to be flexed at the metacarpo-phalangeal and inter-phalangeal joints." On October 18, 1889 (a little more than thirteen months prior to Dr. Keen's operation), "the tendon of this muscle going to the ring-finger was then isolated, transfixed by a fine tenotomy-knife, and split longitudinally for a distance of two inches. At each end of the fissure so made the tendon was divided in such a manner as to leave one-half the split portion attached to the proximal, the other to the distal, end of the tendon. When the fingers were fully straightened the ends of the divided tendons still overlapped each other to the extent of about one-third of an inch. The overlapping portions of each tendon were then carefully sewed together by catgut sutures, etc. Two months later the condition had much improved, and the voluntary flexion, although still weak, was altogether complete as to range. All the tendons had evidently united firmly."

If the date of publication were taken as a basis the credit of originating this operation would, of course, be given to Dr. S. Weir Mitchell, and of performance to Dr. W. W. Keen, but although the lectures of Mr. Anderson were not published until July 18, or about four and a half months after Dr. Keen read his paper, the dates of the respective operations must clearly establish the priority. Mr. Anderson performed his first operation on October 18, 1889, while Dr. Keen's operation was performed on November 29, 1890, one year and something over a month later.

If there could be any question remaining in the mind of any one as to priority of invention and performance, the correspondence between Mr. William Anderson and Dr. W. W. Keen, as published in the *Lancet*, November 21, 1891, page 1195, will make the matter clear.

"LENGTHENING TENDONS IN DEFORMITIES OF THE HAND.

"To the Editors of the Lancet:

"Sirs,—In my second Hunterian lecture at the Royal College of Surgeons, delivered on June 10 last, and published in the *Lancet* of July 18, I described a new method of lengthening tendons, and recorded a case of contraction of the fingers in which it had been successfully employed by me at St. Thomas's Hospital, in October, 1889. A few weeks ago Professor Keen, of Philadelphia, with whom I had the pleasure of a correspondence on the subject of hand deformities, favored me with a reprint of a paper read on March 4 last before the Philadelphia College of Physicians, relating to an identical operation undertaken by himself in November, 1890, at the suggestion of Dr. Weir Mitchell. The paper was entitled 'A New Method of Tenotomy, by which the Tendons are Lengthened to a Definite Extent, instead of by the present Hap-hazard Method.' Professor Keen, of course, had then no reason to believe that his case was not the first of the kind; but after receiving a letter from me pointing out the date of my operation, he has with the greatest promptitude and courtesy sent me the following reply, which I beg you will do me the kindness to insert in order to dispose of any question that might arise hereafter.

"I am, sirs, yours obediently,

"William Anderson.

"Harley Street, W., November 14, 1891.

"copy of letter.

"1729 Chestnut Street, Philadelphia, October 13, 1891.

"My dear Mr. Anderson,—I am greatly pleased to receive your letter of September 30. I feel that I deserve very little credit myself, because the idea was purely original with my friend Dr. Mitchell, who suggested it to me, as I stated in my paper. Any credit, therefore, really belongs to him. At the same time I will freely admit that priority both as to idea and performance belongs to you. I had overlooked the fact that your operation was done in 1889. If you will kindly write a little note to

the *Lancet* calling attention to the fact, it will entirely meet with my approval.

"Very truly yours,
"W. W. KEEN."

In similar instances of coincidental invention the names of both parties have been used where it was deemed desirable to call the operation after the originators. In this instance I have lately been in the habit of alluding to this operation either as the Anderson-Keen method, or by such descriptive title as "Longitudinal Tenotomy and Suturing at a Definite Point," but Dr. Keen's letter published in the *Lancet* disclaims his right and accords it to Anderson, and, therefore, I believe that hereafter the operation should be known as Anderson's method.

Quite recently, March 25, 1893, the *Centralblatt für Chirurgie* published an article by Dr. Trnka, entitled "A Contribution to the Technique of Suturing Tendons," in which the author speaks of methods which he employed for the first time in 1887. As his method is entirely different from the previously described method, and as it was published for the first time in March 25, 1893, it could not have influenced the production of the method first described in this paper, nor in my mind detract from the originality of either of those operators already referred to.

Trnka utilizes a lateral section of the upper portion of the divided tendon, which he turns down and stitches securely to the lower portion, or else he unites the divided ends by strands of catgut securely sutured to each of the divided ends of the tendon.

While the two methods of accurately operating upon tendons were devised for the purpose of elongation, that which is most frequently required, I was impressed with the applicability of the longitudinal splicing method of Anderson to the shortening of tendons.

In the discussion which followed the reading of Dr. Keen's paper on March 4, 1891, I spoke of its applicability to shortening tendons. On June 10, 1891, I resorted to the method in a case of paralytic talipes calcaneus, and have since that had occasion to employ it four times, although there are no published records. In my doubt as to whether this method had been tried to shorten tendons, I wrote to Mr. William Anderson, from whose letter of April 4, 1893, I quote: "The application (of the method under consideration) to tendon shortening is certainly yours. I expect to receive a suitable case for testing it in the course of a few days, and should I not be disappointed I will let you know the result."

The "American Text-Book of Surgery," edition of 1893, page 324, says, "Lately Anderson and several other surgeons have simultaneously proposed to lengthen the tendons by a definite amount in cases of contracture," and on page 323 is given an illustration as though reproduced from Dr. Keen's orignal paper of March 4, 1891.

The other surgeons above referred to embrace the methods already de-

scribed, and in addition those in which it was attempted to obtain the same result by recourse to subcutaneous methods. It is clearly apparent that the essential feature of the methods described is the suturing together of the splice so that the elongation or shortening should be of a definite amount. In the subcutaneous methods there has been no attempt, as far as I know, to suture tendons, and shortening cannot be accomplished subcutaneously.

INTESTINAL OBSTRUCTION.[1]

BY A. B. HOLDER, M.D.,

Memphis, Tennessee.

I SHALL not cover the field indicated by the title of the paper. I shall present notes of six dissimilar cases of *intestinal obstruction*, with such points as these cases have suggested to me, and some general conclusions as to the symptoms and treatment of obstruction.

CASE I.—INTESTINAL STRANGULATION.

A stout white man, fifty-seven years of age, fair general health, constipated habit, with double inguinal hernia, began having colicky pains and nausea. No action of the bowels for forty-eight hours. I found him utterly prostrated, pulse thready, and speaking in a whisper. I examined the hernia and found the ring of exit clear on both sides; the belly was a little swollen, with some tenderness not localized. Next day there was some reaction, but the frequent vomiting continued. On the succeeding day, Wednesday, vomiting became fecal, and an operation was proposed, but declined. The temperature at first was subnormal, and again towards the end became subnormal; at no time was it above 101°. Fecal vomiting continued a frequent symptom. Slight fecal discharges with enemas. Friday, short period of marked improvement in symptoms, followed by steady decline, and death Sunday night.

Post-mortem, Monday: no general peritonitis; small intestine full of gas, but not congested. Passing the hand to the supposed seat of obstruction, a loop of ileum was found incarcerated in an old hernial sac and strangulated. On the gentlest traction the gut slipped out of the sac; there was one very small point of adhesion just within the neck of the sac. The loop within the sac was about two inches long; it was collapsed, quite black, but not sloughing; the parietal peritoneum even just about the ring was normal. The sac was spread out in the cellular tissue outside the peritoneum,

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[1] Read before the Medical Association of Mississippi, Tennessee, and Arkansas.

and its contents, being a collapsed loop of gut, were utterly unrecognizable by external examination.

This case illustrates acute obstruction from intestinal strangulation. Finding and relieving the obstruction by laparotomy would have been exceedingly easy, and would have saved the patient's life if done even, I believe, as late as Saturday morning.

CASE II.—INTUSSUSCEPTION.

A healthy boy eight years of age began Sunday to have colicky pains and vomiting, and was given calomel. Monday, as the symptoms continued, he was given castor oil, turpentine, and enemas. Tuesday the same symptoms were present. The treatment consisted in morphine for the pain, which was located in the right iliac region. Later he began to suffer pain in the right leg and about the right knee, and this leg was flexed upon the belly. Wednesday and Thursday the symptoms and the treatment were the same, until Thursday evening, when two large actions occurred, the first since the preceding Saturday, with marked relief. Sunday he was not so well, and I was asked to see him. Monday the bowels were moved, and two pieces of membrane—one of one-half and one of three-quarters of an inch long—were passed. This was followed by slow recovery.

This case I diagnosed as appendicitis (as practically it was when I saw the patient) until the passage of the membrane, which enabled me to diagnose intussusception with spontaneous cure by sloughing of the invaginated portion. Intussusception is practically a disease of childhood, and the favorite seat is the ileo-cæcal portion. It may be observed that the usual method is that the valve with a portion of the colon descends into the colon, dragging the ileum after it,—not that the ileum slips through the valve, as is generally supposed.

CASE III.—FUNCTIONAL OBSTRUCTION.

A groceryman, aged forty, after violent purgation with some patent pills, the last of which were taken Thursday night, began on Saturday having abdominal pains. Sunday he was given ten grains of calomel, followed by salines and enemas, none of these acting. Tuesday the vomiting became fecal. I saw him in consultation that evening, much prostrated, temperature 97°, pulse 90, respiration 38, tympanitic and tender over belly. Morphine hypodermically, to ease the intense pain, and two ounces of castor oil were given. Next morning general improvement followed several free discharges, and he recovered slowly.

Here was acute obstruction for five days, with alarming prostration following violent purgation. There was probably a paralysis of the large intestine caused by the irritation of the purgatives.

In such cases chiefly would I look for benefit from the classical opium and belladonna treatment, if to it were added irrigation through the mouth and anus.

CASE IV.—APPENDICITIS.

A stout laboring man began having colicky pains on Saturday. I saw him Wednesday; pulse 100, temperature 100°, tympanites and tenderness at McBurney's point, and an ill-defined tumor in this region. Laxatives had been used, but no action secured. I directed salts and large enemas. Saturday still no action; temperature 102°, pulse 120, vomiting, pain, and swelling. Discussed an operation, but gave four ounces of castor oil, and in a few hours secured several large stools, followed by marked relief and rapid recovery.

Here was a typical appendicitis, causing an obstruction for eight days, the symptoms becoming decidedly grave, relieved as if by magic by a full dose of castor oil.

CASE V.—INTESTINAL CONTRACTION.

A young Irishwoman, treated a year ago for a pelvic inflammation and habitually constipated, after a rough street-car ride began suffering abdominal pain, and when I saw her, at five o'clock next morning, she was in great agony; she was vomiting, the bowels had not moved for several days; the pulse was 100, the belly tender; and a vaginal examination showed fixation of the womb. Wednesday the vomiting continued and at night became stercoraceous. Oil, Rochelle salts, and enemas did not effect an evacuation. The latter returned stained black, and were followed by an ounce or two of tarry or coffee-like disintegrated blood. She sank rapidly and died next morning.

I was unable to secure a post-mortem, but I was, however, fairly sure of my diagnosis of acute obstruction due to *contraction*, a result of the former pelvic peritonitis, the acute attack being precipitated by the rough car-jolting. So lightning-like was the course of the case that no time was offered for laparotomy, even if laparotomy had promised relief. Yet I can conceive no condition less amenable to surgical interference than a contraction where some inches of looped and folded small intestine traverse a mass of organized effusion.

CASE VI.—STRICTURE OF THE INTESTINE.

I was allowed to see with Dr. Crofford, of this city, a patient of Drs. Phillips and Farr, of Lexington, Mississippi, a most interesting case of chronic obstruction, ending fatally.

A middle-aged man, formerly a hard drinker, of irregular bowels, and accustomed to occasional spells of vomiting and abdominal pains, on September 12 began a siege of persistent constipation, ending in death from inanition October 31, after a sickness of forty-nine days. Colicky pains, meteorism, and tenderness followed the constipation. Saline purgatives were followed by aggravation of the symptoms and stercoraceous vomiting. About the second week of his illness, after some straining at stool, he passed

a few drachms of blood. During the forty-nine days nothing passed through the bowels. Pain was controlled by morphine hypodermically. He was nourished by rectal injections of Mosquera's beef-meal in peptonized milk, and occasionally a few drops of Valentine's meat-juice, in water, as a drink.

The autopsy, by Drs. Phillips and Shepherd, showed great emaciation and abdominal distention. The stomach and duodenum were empty and collapsed. There was a little dark, offensive fluid in the jejunum and ileum; the colon was distended with gas. A stricture was found at the juncture of the sigmoid flexure and the rectum, eight inches from the anus.

There had been apparently an old ulcer on the outside of the gut; cicatricial contraction causing a narrowing of the canal, and the projection inward of a fold of mucous membrane which acted as a valve, admitting of the passage upward of the little finger (in the specimen) but preventing any down-flow whatever.

This is a typical case of chronic obstruction. In the light of the autopsy I should favor laparotomy in such a case, the stricture to be divided according to Heineke's method for pyloric stricture by a longitudinal incision extending an inch above and below the stricture, bringing together this incision transversely, and suturing it so. Medical treatment was proven ineffective, and dilatation, it seems to me, would have been dangerous and difficult in a stricture eight inches from the anus. It may be observed that strictures cause seventy-three per cent. of all obstructions, the most frequent location being the sigmoid flexure and the rectum.

Stercoraceous vomiting is not the earliest symptom, constipation, pain, and sometimes shock preceding it. But as far as a symptom is ever pathognomonic, stercoraceous vomiting is pathognomonic of intestinal obstruction. Its onset is by way of nausea, vomiting of stomach contents, vomiting of stomach secretions, vomiting of bile, and finally of fecal matter. It occurs, of course, much earlier where the obstruction is in the small intestine, but it is a marked symptom even when it is in the rectum that the stoppage occurs, as was seen in the case of those I reported. It is well to bear in mind that the odor the vomited matter bears is not necessarily, nor, indeed, usually that of the ordinary alvine discharge, the odor of these being acquired in great measure in the colon, whereas stercoraceous matter comes, at least at first, from the small intestine. It is best described as a slaughter-pen odor, which odor it very closely resembles, and with which all are familiar. Towards the end of fatal cases the yellow bile comes into the mouth without any effort at vomiting, and is spit out, being forced up by the reverse peristalsis of the intestine.

The most remarkable, and to me inexplicable, symptom of obstruction is *shock*. It is not necessary to describe this symptom; from one of its several causes we are all familiar with it. When a thigh is crushed beneath a railroad train, or the large internal organs are bruised by a heavy blow, it is easy to see why there should be sent to the nervous centres a draft too great

to be honored, and there should occur an immediate yielding of the vital powers, with the cold sweat, the thready pulse, the wavery intelligence of shock; but why, within an hour or two of the strangulation of a tiny loop of the small intestine, this alarming condition should supervene, is not so easily understood. Yet in acute obstruction shock is often lightning-like in its onset and extreme in its severity, collapse occurring in ten minutes after seizure, as in a case reported by Dr. Dalton, of St. Louis.[1] Shock I consider of much importance in diagnosis, since it is often the first characteristic symptom. It is of much importance also to observe that after the first onset of shock there is usually a reaction, in which the pulse becomes slower and fuller, the temperature rises to normal or above, and the expression of anxiety gives place to one of pain. This is the time, and in many cases the only time, for operative interference.

To put my idea of *treatment* in a very few words, I should say, first a full dose of castor oil. I cannot see how this remedy can do serious damage, and it will aid wonderfully in making a diagnosis if there be only a constipation, and in some apparently serious obstructions will effect a cure. Then enemas of warm Thiersch's solution to the full capacity of the bowel under gentle pressure, repeated every four hours or oftener. When nausea and vomiting come on, large quantities of hot boracic acid solution, repeated after each vomiting.

With the impression that shock as well as the septicæmia from obstruction, which is closely akin to shock,[2] is due in great measure to absorption from the intestine of toxic matter, the rationale of this irrigation is to procure as near as possible an aseptic condition of the canal.

Hypodermic injections of morphia should be given to relieve pain, and rectal alimentation. These measures failing and the condition of the patient growing worse, the only thing to do is to perform laparotomy. As to the best time for this, putting aside a comparison of the powers of recovery of a man two days ill, and of the same man ten days ill, let us consider only the operation. Very brief consideration will establish the pre-eminent advantage of early over late operation; operating before inflammatory reaction we have an aseptic field, are enabled to slip out a loop, cut a constriction or untwist a volvulus, and have the pleasure of seeing the establishment of hæmic and fecal circulation and restoration to health of the affected parts under our very eyes. At worst, finding an inoperable condition, we are enabled to close a clean exploratory incision with our patient's chances hurt less than ten per cent. Wait a few days and the gut is glued by inflammation, soft from gangrene, tears in our fingers, requires resection or an artificial anus, and with all this we get fecal infection of the peritoneum. One operation is comparatively safe, the other immensely dangerous.

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[1] Annals of Surgery, October 9, 1890.

[2] "Many rapidly fatal cases classed as 'shock' or 'exhaustion' would on closer inquiry turn out to be cases of acute septicæmia."—*Gerster's Surgery*, p. 145.

OBSERVATIONS ON MOVABLE KIDNEY WITH HYDRONEPHROSIS.[1]

BY D. W. GRAHAM, M.D.,
Chicago, Illinois,
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THE most recent writers make a distinction between floating kidney and movable kidney, and this distinction should be more generally recognized than it is. By the former is meant a congenital malformation where the organ is entirely surrounded by peritoneum, and is as truly intra-peritoneal as is the spleen. This condition is rare and of little pathological importance. The latter term is used to designate an acquired condition of the kidney where it is loosened from its natural bed and glides more or less freely under the peritoneum in any direction, either with or without its fatty capsule, or at times the organ may gradually stretch its covering of peritoneum, to which its anterior surface is normally attached, and project more and more into the peritoneal cavity, thus approximating the condition of the true floating kidney.

There is no doubt that the movable kidney in some of its forms was, as has been suggested, the "phantom tumor" of older days, for the chief physical phenomenon is the presence of a tumor, visible or palpable through the abdominal wall, at times easily discovered and suddenly disappearing while being manipulated, and at other times not discoverable by any means.

The causes of movable kidney, as usually given and described, need not be rehearsed or discussed in this connection, nor the reasons why the condition is more frequent in females, and more often found on the right side than on the left. It may be stated, however, that the chief etiological factor is a rapid absorption of the circumrenal fat and that of the abdominal walls and cavity generally. Violence in the region of the kidney stands alone, in some cases, as the starting-point of the trouble.

The only objective sign worthy of notice is the presence of a tumor, as just referred to, in the space between the hypochondrium and the pelvis. The symptoms may be summarized as including mental disquietude, pain, localized or reflected, and disturbance of the functions of the kidney or any of the neighboring organs, though in many cases there are no symptoms except a mental disturbance, caused by a knowledge of the presence of a tumor. Examination of the urine gives negative evidence only.

The most marked and the most serious consequence of movable kidney is the inevitable tendency to the formation of hydronephrosis. This causative

[1] Read before the Illinois State Medical Society, 1892.

relation between these two conditions is everywhere recognized, but probably there is not as much importance attached to it as there should be. When a kidney becomes more and more frequently displaced, and eventually the condition becomes permanent, the normal relation of the organ to its ureter is altered, and the tube is subjected to pressure, to acute flexion, or to twisting, hence the outflow of urine is arrested at intervals more or less prolonged or permanently, though the obstruction is not often complete or permanent, when due to mobility of the kidney alone, for intermittency is a marked characteristic of this variety of hydronephrosis.

The range of symptoms of a developing or of a fully-developed hydronephrosis is the same as in movable kidney, except that all the mental, physical, and functional disturbances are more intensified and the tumor becomes variable in size, or intermittent. Indeed, this variation and intermittency are almost pathognomonic when the condition is due to mobility of the kidney. It is true that we have intermittency when the condition arises from other causes, but in the former case the mobility of the organ is present and generally discovered before the enlargement.

The progressively destructive tendency of hydronephrosis is to be kept in view and emphasized. First the pelvis of the kidney suffers distention, then the calices and tubules are dilated, and soon the secreting substance of the organ is subjected to increasing pressure, and ultimately the kidney is completely destroyed as an excretory organ and converted into a sac, whose lining membrane continues to give off an albuminous watery fluid indefinitely. In addition to this result of the natural course of the disease when allowed to go on without interruption, the hydronephrosis is liable at any time to become a pyonephrosis with its still more destructive tendencies.

How, then, shall we conduct the treatment of hydronephrosis when due to movable kidney? By way of prevention an endeavor may be made to limit the range of motion of the organ, and to hold it in its natural position by means of trusses or pads and bandages. This course is justifiable in a mild case and when there are no distressing symptoms such as to interfere with the requirements of the patient's avocation, although not much is to be expected from these measures, for the reason chiefly that sufficient pressure to retain the kidney in place cannot be tolerated by the patient. The operation of nephrorrhaphy is called for as a preventive measure in the more marked cases, and in all cases not amenable to simpler means. This operation is a safe one, has been often done, and within recent years many attempts at improvement have been made with some degree of success. And, while it does not give the infallible and permanent results that are sometimes extravagantly claimed for it, it is still the operative procedure to be adopted in simple cases of movable kidney.

When we have the hydronephrosis already developed to a recognizable degree, how shall it be dealt with? Aspiration, massage, pads and supports of various kinds have been advocated, tried often, and an occasional case reported permanently cured by such measures, especially by repeated

aspirations. But none of these means are to be relied on, and while they are being tried time is wasted and damage to the essential part of the organ is gradually going on. The question lies between nephrorrhaphy, nephrotomy, and nephrectomy. The first is rarely adequate alone, and the last is too grave an operation for the condition and an unnecessary sacrifice, except as a last resort or when the essential part of the organ is entirely destroyed and the remnants only are to be dealt with. Lumbar nephrotomy—cutting into the kidney from the loin for the purpose of securing continuous free drainage, exactly as if for pyonephrosis—has been resorted to with the best apparent results, when considered from all points of view, and is to be advocated on rational grounds as well as on those of experience. This procedure, of course, contemplates firmly sewing the kidney to the edges of the wound as a part of the operation, and in such a way that the dilated cavity within it is directly continuous with the lumbar opening. At least one heavy silk suture should be passed through the whole thickness of the kidney, and the structures of the lumbar wall, including the skin, on each side of the incision. Thus the kidney becomes so firmly fixed to the lumbar wall that there is little danger of it ever becoming detached. The cause of the obstruction is permanently removed, and the sac gradually contracts down to a harmless size, the urine again flowing its natural way, except what passes temporarily through the wound, which is allowed to close at the proper time.

It is claimed against this operation that the tract of the wound and the sac are liable to become infected and to suppurate. This is true enough, but this liability is not great, and can be reduced to a minimum in any case, and in any event it is not greater than the liability of a hydronephrosis becoming a pyonephrosis if it is not arrested in its course. If it is argued that a certain amount of kidney substance is destroyed in this operation of nephrotomy, as an offset it can be urged that there will probably be less destruction than if temporizing measures are resorted to, or an operation that may seem less grave but which is less likely to prove inadequate in the end. Dr. R. F. Weir, of New York, has the credit of first deliberately resorting to nephrotomy for the cure of intermittent hydronephrosis due to movable kidney. Newman, in 1888, had collected twelve cases, including that of Weir, all resulting in complete cure. Gross had added three more a little later. The report of Czerny's clinic gave five operations with two deaths, but these were said to have had complications.

It has occurred to me to have four cases of movable kidney within a year, all of them hospital cases. Three of them had developed hydronephrosis as a result of the displacement. Three were in females and three were on the right side, one of the females having the left kidney involved. All were unilateral.

Case I., that of a male of twenty-nine years, is worthy of record in this connection, although there was as yet no hydronephrosis. He was thin and had been progressively emaciating for months. The disquietude of

mind was marked. A movable, intra-abdominal tumor was found in the cæcal region, the existence of which the patient had known of for some time. There were tenderness and radiating pains in connection with the swelling. On account of the patient's general condition, the pain and tenderness, the apparent attachments, and the location of the tumor, a diagnosis of probably malignant disease of the cæcum had been made before I saw the patient by one of the best diagnosticians. To me also that seemed to be the best explanation of all the symptoms. An exploration was made through an opening over the site of the tumor, and it was found to be the kidney, normal in size and condition, retroperitoneal, lying partly within the true pelvis, between the common iliac arteries, with the hilum looking diagonally upward. The overlying peritoneum was incised and manipulations made by which the kidney could be pushed up towards, if not quite into, its natural position,—swinging on its vessels as on a radius,—from which it would quickly recede on removing the pressure of the hand. The wound was closed, and at a later date a lumbar nephrorrhaphy was undertaken in order to anchor the kidney to the lumbar wall. The effort and the result were not satisfactory. The kidney could not be brought fully to its natural position, and considerable traction was required until the sutures were tied.

I think the explanation of this difficulty was the adhesion of the kidney to the peritoneum at the point of incision at the brim of the pelvis, which was made in the exploratory operation. By the time the patient was well of his wound and on his feet the kidney had pulled away and seemed to be near where I originally found it. The patient has since disappeared from view.

Case II.—Mrs. T., a mother, aged thirty-five, had a movable, variable, intermittent, gradually-increasing, painless swelling in the right side of the abdomen with some irregularity on the surface. There were no symptoms except mental disquietude. The diagnosis of hydronephrosis, probably the sequel of a movable kidney, was made. Another physician at an earlier day had diagnosticated impacted fæces, because of the want of symptoms, the location of the swelling, and its behavior under massage.

Nephrotomy, drainage, and secure stitching were resorted to. More than a pint of clear, odorless fluid was evacuated. No stone or other cause of obstruction was found. The fluid from the drainage-tube soon became pure urine, and the tumor disappeared. The wound was kept open three months. It remained closed, no tumor reappeared, and she is reported well at last account.

A few weeks after the operation the wound had contracted firmly around the tube, which could be corked, and the flow through it controlled at will. During the progress of this case I made some interesting experiments to determine whether the ureter was pervious by injecting red aniline dye through the tube, corking it, and noticing the varying intervals at which the stained fluid would appear in the bladder. A solution of permanganate

of potassium was first tried, but it seemed to decompose and the color disappear before it reached the bladder. Before the tube was removed the patient made a visit to the country, using the corked tube for cleanliness and protection. While away she had a violent chill, febrile movement, pus from the tube, and for the first time cloudy urine. She returned, and the evidence of suppuration shortly disappeared without a trace of bad results. The irregularity, as has been mentioned as being found on the surface of the tumor, is often present in hydronephrosis and pyonephrosis, and should be kept in mind as an aid to diagnosis. It is caused by unequal dilatation of the calices and pelvis.

Case III.—Mrs. S., aged thirty-three, a mother, suffered great distress in right side of abdomen, gradually failing health, with a movable tumor, variable in size, having gradually developed in the course of a few months. *Diagnosis:* movable kidney with small hydronephrosis. The organ was cut down upon, and a small quantity of fluid was demonstrated with the aspirator. Nephrorrhaphy was completed by passing two large silk sutures through the substance of the convex border of the kidney and the borders of the lumbar wall. A large cicatrix was encouraged by using a large drainage-tube for a considerable time. Some suppuration occurred. The patient was discharged well in about two months and improved rapidly in general health. All symptoms disappeared and the operation was counted a perfect success. A recent letter advises me that all went well with the patient for months, but a few weeks ago, after some lifting and unusual exertion, soreness came on at the old site, and the kidney could be felt at times as formerly, and everything points to the conclusion that the organ has broken away from its cicatricial adhesions and threatens to become as troublesome as before the operation.

This case illustrates, in the first place, that I showed too much clemency to the offending organ in making a simple nephrorrhaphy instead of nephrotomy and drainage; and in the second place it shows the unreliability of statistics and reports of results when made too early.

Case IV.—Admitted to the hospital the 27th of April, Mrs. P., aged forty years; has borne ten children. Patient says her present sickness began the first of last January suddenly, while riding in a wagon. The first symptom was a severe pain in the left side, radiating into the groin and thigh. Then appeared vomiting, diarrhœa, dysuria, vesical tenesmus, and scanty urine, on account of which she was bedfast six weeks. Some improvement came, but on admission there was the same group of symptoms with great emaciation and unusually lax abdominal walls. During a preliminary observation period of about a week the urine was habitually cloudy, of good specific gravity, but the quantity for twenty-four hours never exceeded eight ounces. A movable enlarged kidney with supposed hydronephrosis could easily be made out on the left side, resting partly below the crest of the ilium.

Lumbar nephrotomy for drainage and suturing was decided upon. On

exposing the organ it was found to be completely covered with serous cysts, varying from the minutest size to an inch or more in diameter. Indeed, the whole cortical substance seemed to be involved in the cystic degeneration.

The larger cysts were all punctured. Fluid was demonstrated within the kidney by the use of the aspirator and fluctuation. The fluid was clear. The pelvis of the kidney was not greatly distended.

An extemporized consultation with my associate, Dr. Senn, who was present, resulted in changing the original plan of operation to that of a simple nephrorrhaphy, which was carried out with two large deeply-planted silk sutures. Recovery from the operation was uneventful. Improvement in the patient's condition was immediate and remarkable. The amount of urine increased to nineteen and one-half ounces the first twenty-four hours, and in a few days reached as high as fifty ounces. The whole group of symptoms rapidly and completely disappeared, and improvement in nutrition and gain in weight were noticeable from the first.

The patient is still under observation. The reason for changing the plan of operation in this case was that the extent of the cystic degeneration found, taken in connection with the gravity of the symptoms and the scanty urine that had been present before the operation, raised a serious doubt as to the integrity of the other kidney as well as to the functional value of this one. In the face of such suspicions the wisest course seemed to be, for the time being, at least, to pursue that course which would destroy the least amount of kidney substance.

CONCLUSIONS.

1. Intermittent hydronephrosis is a frequent sequel of movable kidney.
2. Mental disquietude may be the only symptom of a movable kidney or hydronephrosis.
3. On the other hand, there may be functional disturbance of every neighboring organ.
4. Disturbance of the functions of the kidneys may be less marked than that of the other organs.
5. Hydronephrosis is a progressively destructive condition.
6. Nephrorrhaphy is indicated as a preventive measure even when not called for by the severity of the symptoms *per se.*
7. Hydronephrosis once developed is most effectually and safely treated by lumbar nephrotomy and drainage.
8. Nephrectomy for hydronephrosis is not warranted unless the kidney substance is completely destroyed or the ureter is impervious.

THE VALUE OF AERO-TONIC TREATMENT IN OUR CURED NOSE, THROAT, AND CHEST PATIENTS: WITH A FEW REMARKS ON SOME SUITABLE WINTER RESORTS.

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THE question regarding the prescribing of change of climate as an after constitutional tonic for many classes of nose, throat, and lung patients has so often presented itself to me that I was not long in trying its efficacy. To-day, from the survey of my case-book, I can speak of its benefits only. For several years this plan of treatment has been followed up in all of my patients whose pockets could stand the call made upon them. We know that it is not applicable to all our patients for that very patent reason, but most of them—especially those who are willing to adopt any means offering the prospect of cure—will do all in their power to make the necessary sacrifices which such a step demands. Such prescription and advice, unfortunately, often depends upon the honest physician as much as it does on his patient.

All of us daily come into contact during our consultation hours and hospital duties with many cases that have already run the entire gamut of therapeutics,—some with and not a few without any beneficial results. Again, many are cured as far as it is possible for the laryngologist. But few undoubtedly have given this important question more than a passing thought. From my own experience up to the present time I can promise them more of a lasting result by this combined treatment than by a continuation of the ordinary and prevailing one. Most cases need more than the general routine, and if persisted in, we not only harm them but can hope for little without the aid of building up the general constitution. To be honest towards ourselves: Can we accomplish by means of drugs and the swab alone that which could otherwise be attained by bringing to bear upon the disease the properly suited food and the climatic influences; or can we hold that ground which we have gained by judicious treatment?

We must not forget that selected cases need protection for at least a certain time from the inclemencies of the climate in which they live, in order to insure against a repetition of the attack, and thus give the constitution a chance to regain the lost vitality of which it has been robbed.

Of recent years change of climate has been deemed a therapeutic agent of the greatest, but not exaggerated, importance. It is one of the simplest, most natural, and most efficacious of remedies. The mere fact of change, in the case of illness or tendency to illness, has been proved to be highly salutary.

The liberation from the ordinary cares and trammels of life, the vivifying ozone and iodine of the sea atmosphere, the seeing of new faces and feasting the eye with new scenes, are all factors in the successful treatment of disease. So great is the value of change, that Sir Henry Holland advises the patient who is unable to leave his home to change his room, and if he is unable to do this to change his furniture. The matter is of so general a nature that it is extremely difficult to lay down any precise rules. Each patient must legislate for himself, making wise use of his own knowledge and the advice of his physician. Still, a very large amount of facts have been obtained by observations and experiment, which have placed some of the governing principles on a secure basis.

In advising our patients, we must say to them, first of all, "Try to keep well." Change of climate is a most valuable remedy in our system of prophylactics, which is one of the glories of modern medicine. It is the disinterested preaching of all medical men that prevention is better than cure. This is the leading principle of all hygienics. Another great point is to disabuse the mind of misconception. Change of climate is not a specific. There is nothing in the air of any special place that will directly heal disease. The remedy must be applied in combination with a variety of details relating to clothing, suitable diet, the skin, exercise, rest, and other conditions.

Change of climate is a most potent factor in the treatment of many chronic, and is mostly indicated and to be recommended as an after tonic in patients recovering from all acute diseases of the respiratory tract. I need not enumerate the special class of cases for such an aero-tonic application; it is, in fact, applicable in all cases wherein the constitution has suffered much from the wear and tear of catarrhal effects of those passages that demanded operative proceedings. For vocal rest, etc., let me say,—

The first generalization to be made in climatic change is this: the patient should reverse, so far as is advisable, the nature of his ordinary climate. There is a simple formula, of course liable, like all generalizations, to be occasionally modified. "If the patient has come from the north, let him go to the south; if he has come from the south, let him go to the north. If he has been ill in a mild climate, let him try a bracing climate; if he has been ill in a bracing climate, let him try a mild climate."

In the class of cases to which I make reference here, regarding the climatic application, the same rules usually applied in the treatment of consumption by climatic change are not to be applied here, owing to certain laws now known to us, and the varying conditions present to be taken into consideration. Nevertheless, the value of climate has shown its results even in such hopeless cases as advanced phthisical patients present. We have had ample proof of the fact that there are many cases in which a crippled life has been rendered very tolerable for many years. This is one very remarkable and satisfactory clinical fact which has been established beyond peradventure. The average duration of life in these cases has been greatly lengthened.

Formerly, when the verdict of "Tubercle in the lung" was given, a term of two years was considered at most the limit of the life of the condemned.

Unhappily, patients are often very slow to avail themselves of these climatic measures, notwithstanding the fact that the benefits to be derived are clearly laid before them. Many have seen and will see their gain, while from others we must expect, again, the refusal of any such proposition. The trouble is, that many patients make primary considerations secondary and secondary considerations primary. They must attend to their business and their banking accounts, to their friends and their connections, and after that they will attend to their health. Many a valuable life has been thrown away in this manner. My motto has been, "If life is worth preserving, its preservation should be the first consideration."

When once the plan of the campaign in this conflict between health and disease, between life and death, is skilfully laid and properly carried out, we have often had the good fortune to see most satisfactory results.

Climate is not to be considered a rough-and-ready remedy, but a potent instrument for cure, and one of great delicacy; moreover, one which requires to be nicely adjusted to the requirements of every patient. When the necessity and probable efficacy of a change of climate are fully recognized, the question of locality arises, and to settle it we have many difficulties to contend with. You cannot lay down any general rule. Each patient must be considered with regard to his own pathological condition; as no two blades of grass are alike, no two sunsets alike, no two faces alike, so no two medical cases are precisely similar; therefore, generalization in drug treatment is as futile as it is in the treatment by improperly prescribed change of climate. The choice may lie in half a dozen localities. When you have decided upon a place suitable to a case, the place may have half a dozen climates. We know from scientific data that in many places there exists a variety of climate. This may be regulated by giving attention to the position chosen for the invalid, namely, whether this falls south, and is sheltered from the north or northeast; whether it is low-lying, warm, and rather damp; or whether the position is high and dry.

The plan to be followed in selecting climate for a patient is that he is to be guided at all times by his physician, who must be intimately acquainted with the nature of the case which he is treating and the locality which it demands.

In the following pages I intend to draw the attention of the physician to certain facts so that he may not fall into error, and also point out to him such climates as are suitable for patients I have here made reference to. These climates herein spoken of and described are the outcome of much study and thought.

Before going further into this subject, a few words regarding the variations in climate that have taken place in past years will not be out of place.

Speculations concerning changes of climate have an interest that never flags. The subject of climatology is a difficult one. The data for its proper study have hardly begun to be collected. We are embarrassed when we undertake to define climate and what marks to accept as its characteristics. Hann and Humboldt define it as comprising the whole of the meteorological phenomena characterizing the state of the atmosphere at any place, particularly as they affect our organs or have an influence on animal or vegetable life. The general character of the conditions cannot be determined by the observations of one year, for they are liable to be contradicted by those of the next year, nor by those of any short term of years, for a like reason. A period long enough must be taken to furnish the data for composing a type; and the more the years vary, as between one another, the longer must the period be. Many factors enter into the composition of a climate and form complicated combinations, all of which must be unravelled so as to give each factor its true force and position; and then the determination of their relative importance affords another source of embarrassment. Temperature and moisture are accepted as the most important factors, and temperature as the dominant one; and the climate is deduced by considering the average mean temperature for a term of years. Equal yearly averages do not, however, signify identical climate. A place where the summer heat and the winter cold are extreme has not the same climate as one where the range is relatively narrowed, though the yearly averages may be the same in both. Hence we need separate determinations of summer and winter averages. The combinations of conditions of temperature and moisture may be endless, while the averages of either may be hardly disturbed. Thus we can see how by these facts it is a difficult matter to compare climates even when they are steady for long periods. In the capricious climates of our temperate latitudes a just determination and comparison forms a baffling task.

Observations, more or less systematic, with instruments, have been made of climatological features for about a hundred years, but on a general cooperative plan they have been carried on imperfectly for less than a third of that time, or about the period within which some observers suppose a round of meteorological changes is accomplished for a single locality. Popular opinions are founded most largely on hap-hazard recollections of vague impressions that cannot be depended upon; and even if we had accurate records in place of these, they could not be used to determine the trend of climate, on account of the short time they cover. It has been shown by scientists that it has happened more than once during that time that a series of seasons of a peculiarly marked character has been followed abruptly by a series of opposite character, nullifying the conclusions that may have been drawn from the foregoing series.

Many theories and facts have been set forth as causes by which climates may be permanently modified. Suffice it to say that the above remarks are only adduced to prove that climates are continually changing in their char-

acter and nature, and we must be continually on the alert and keep constantly studying them, if we intend to gain therapeutical benefits.

But since our many well-equipped meteorological stations all over the world are doing such excellent work, we are aided by them in gathering sufficient and reliable facts suitable for all our practical purposes.

Much more could be said regarding the variation of climate from time to time, as we well know that it rarely happens in the succession of seasons that two of an identical character follow in succession, and any more than usually marked variation easily prompts the fancy that some modification in the character of the climate is impending. Thus it follows that only those climates should be prescribed our patients which have given and are giving scientific proofs of their value, and on their record of longest continuing meteorological stability.

FRESH AIR THE BEST TONIC.

We must not merely seek to improve our patients' constitutions by the old and time-worn methods of administering remedies alone, but combine with them the best of all tonics, "*fresh pure air, q.s.*" It is the breath of life, this pure air of the hillside and the coast. Go forth, afflicted ones, in hope; forget your tonics, your bitters, and your acids; take the air, for then "good digestion shall wait on appetite, and health on both. Go forth well clad, well shod; breathe in Nature's gift, pure air."

This pure vivifier (ozone) is found in greater abundance in pure country air than it is in the less pure air of towns and cities. It is more abundant in the mountains than in valleys, at the seaside than inland, in well-drained and ventilated towns than in those where important sanitary regulations are neglected.

Air of pure quality is Nature's great deodorizer and purifying principle, that oxidizes the emanations from decomposing animal and vegetable substances with which the air is constantly tainted, thus rendering them innocuous. The atmosphere would be so polluted by its admixture with the noxious matters evolved during the putrefactive changes which are unceasingly taking place on the globe as to be unfitted for sustaining animal life, were it not for the all-pervading influence of the "*great disinfectant*"—ozone. In thus sustaining the salubriousness of the atmosphere by destroying its impurities, in its turn it, too, suffers destruction. If this were not so, there would necessarily be an accumulation of ozone prejudicial to animal and vegetable life; for it is always being produced, not only on the surface of this planet but in the wondrous envelope which encompasses it.

As ozone has been considered the great scavenger of the air when contaminated with effluvia from the dead, it has been also thought to be the physical purifier of the living animal. Schönbein believed that oxygen undergoes chemical polarization in the body when respired, and accounts in this manner for the rapid changes which occur in the tissues. It is very probable that, when oxygen gas is brought into contact with the blood in

the lungs, a portion of it is transformed into ozone. Some think that it is absorbed in conjunction with the ozone contained in the inspired air, and is carried by the blood into the various tissues of the organism, where it is engaged in the oxidation of effete material. This point is one of extreme interest both to the physiological and pathological student.

As ozone is so universally found to be abundant on the windward and deficient on the leeward side of cities and towns, we are almost unanimous in thinking that it is used up in the destruction of organic matters, and that those substances which hinder the formation of ozone, if they exist in large quantities in the air, are not conducive to health, but rather to disease. It is probable that it possesses the power of destroying the infinitesimal germs or spores with which this organic matter is often associated, and which are, in all probability, the agents concerned in the spread of many diseases.

On the mountain, on the moor, at the sea-side, in one word, in the bright and beautiful country which God made, where pure, invigorating air largely supplied with ozone abounds, in which the laborer, the farmer, and the fisherman are nearly always bathed, the skin is of a rosy hue, and is tanned on exposure. Men and other animals are cheerful, and living things present for the most part a healthy appearance, while sthenic forms of disease are encountered. The sailor, who is more exposed than the landsman to an ozoniferous atmosphere, presents this weather-beaten and tanned appearance in the highest degree.

We find, on the contrary, again, in the confined and crowded dwellings of "*the great unwashed*" which form the great centres of industry made by man, where ozone cannot penetrate, or, if it occasionally does, where it is immediately used up in that oxidation of noxious emanations, men and plants become blanched. The skin exhibits a pallor, and all living creatures look sickly and melancholic, while diseases of the asthenic type predominate.

Writers have ventured to argue that because ozone removes noxious odors, therefore it must arrest infection and destroy pestilential miasmata as well as the germs of epidemic disease. Hence it has been termed "Nature's grand disinfectant."

In cases where I am not able to send my patient to any resort, I administer ozone daily, and am very much gratified by the systemic effects. I have ascertained that ozone is very energetic in its affinities and very powerful in its action, when artificially prepared, and that it has considerable remedial virtues in diseases of the respiratory tract.

In anæmic cases the iron preparations are administered in combination with ozone inhalation, and it is wonderful to witness in a short time the grand effects of iron and ozone upon the condition of such patients. Undoubtedly suboxidation of the metal must be going on, as is shown on counting the corpuscles by the micrometric scale soon after its use.

In the concluding chapter of this paper I shall speak of the advantages of some of our best known winter resorts.

THEORY OF ALVEOLUS FORMATION IN CANCER.

BY JOSEPH McFARLAND, M.D.,

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It is of the variety of cancer which is of glandular origin to which attention is directed in this paper, designating this form as *carcinoma* in order to distinguish it from the form of cancer arising from epithelial surfaces and more generally known as *epithelioma.*

By carcinoma is understood a malignant epithelial tumor whose architecture bears a certain resemblance to that of an epithelial gland.

The growth of such a tumor seems to depend upon an abnormal proliferative impulse operating upon a normal epithelium, with the result that the cells belonging to the alveolus are crowded and obliged to encroach upon the lumen, which eventually is obliterated by the rapidly accumulating cells. When the alveolus is entirely full, and distended to its utmost capacity, unlimited growth *in loco* is prevented by the pressure of neighboring alveoli, the fibrous framework, and the vessels of the gland, so that the cells are forced from the alveolus into the duct or into the interstices of the tissue.

Epithelial glands may be divided into (1) those consisting of alveoli lined by epithelium of the columnar type, called *mucous glands;* (2) those whose alveoli are filled with polyhedral cells having a very small lumen, called *serous glands,* but also including the mamma. In both varieties the epithelium rests upon a *membrana propria,* which is sometimes homogeneous but more often consists of endothelium. According to Schäffer, the *membrana propria* of the serous and mammary glands is a reticulated cellular structure.

In the normal gland the epithelium probably attains considerable age, and the only multiplication of cells that occurs is to replace worn-out individuals. When the cells divide, the line of cleavage seems to be one perpendicular to the circumference of the alveolus, so that the cells continue in their relation to each other and to the basement membrane. In the abnormal growth which constitutes cancer, the cellular division probably continues in the same manner, until there is no longer room on the basement membrane and the new cells are squeezed in or out of their line. These squeezed-out cells are the primitive cancer-cells. Those which are inside the alveolus grow into an irregular mass, filling the lumen of the alveolus and subsequently extending into and frequently dilating the ducts. The other cells —those escaping outward—pass through the *membrana propria,* by rupture

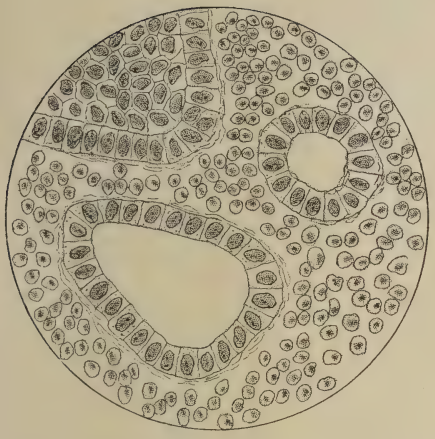

FIG. 1.—Carcinoma alveoli from a lymphatic gland. In the upper left-hand part of the field is seen a mass of cells filling what was previously an alveolus.

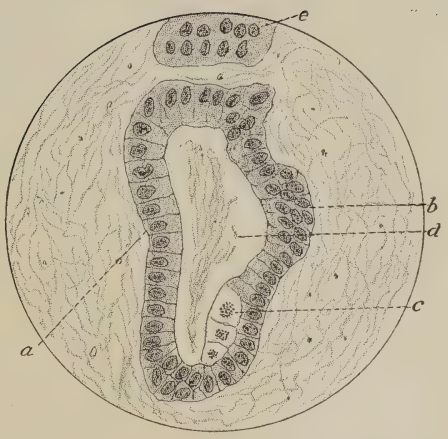

FIG. 2.—Carcinoma alveoli from a secondary nodule from the omentum: *a*, columnar epithelium upon the membrana propria, forming the alveolus; *b*, irregular accumulation of cells where the wall of the cavity is irregular; *c*, part of an alveolus filled by cells undergoing mitosis; *d*, lumen of alveolus; *e*, solid mass of cells in a small alveolus.

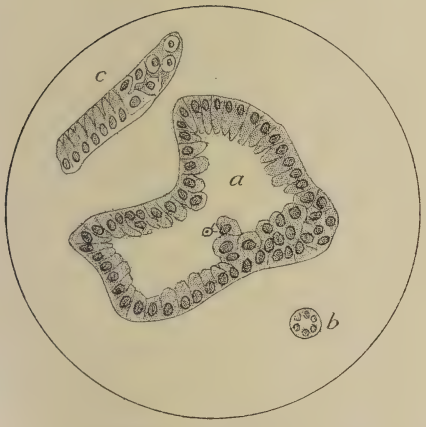

FIG. 3.—Carcinoma alveoli from secondary cancer of the liver: *a*, alveolus with a cellular lining, fast becoming irregular, and showing a tendency to fill up; *b*, bile-duct; *c*, abortive attempt at alveolus formation, the cells forming a single row.

FIG. 4.—Carcinoma alveoli from carcinoma of ovary. The large alveolus shows proliferation of cells. The small one is still quite regular. A still smaller one is observed which is full of cells.

when it is homogeneous, between the cells when it is cellular, and find themselves in the primitive lymph-spaces. Remembering that the tissues actually form a kind of sponge-work of communicating clefts and spaces, channels and vessels, we find in these multitudinous interstices room for an almost limitless growth of cells. In this labyrinth the cells which are to be the cancer-producers proceed to grow, retarded only by the resistance offered by the denser surrounding tissues.

The roots of plants are at first delicate cellular filaments incapable of exerting force and growing in the direction of least resistance, by and by, receiving reinforcing cells, they become great and aid in bursting apart the hardest of rocks. So it is with these cancer-cells; they grow in the direction of least resistance, conforming to the shape of the spaces at first, and often extending into them in single file, but afterwards dilating and irritating them by the strength of added numbers.

There is sufficient reason for thinking that the tender protoplasm of the epithelial cells is less responsible for the dilating effects than other factors, as, for instance, the damming back of lymph to distend the channels and allow room for cellular development, a condition much resembling that seen in inflammation with leucocytic infiltration of the tissue, where we cannot persuade ourselves that the soft protoplasm of the leucocytes has separated the fibres of dense tissues, but rather that hyperæmia with consequent turgescence of the lymphatics has increased the size of the interstices and allowed the leucocytes to creep in.

Ordinarily we see in cancer no further resemblance to a gland than that it consists of groups of epithelial cells surrounded by connective tissue. Its general configuration, if we could isolate it as a cellular mass, would be like a branched coral extending into the tissue, and projecting by long processes into remote parts of the gland from those originally affected, whose secreting structure is still normal; hence it is that in sections of carcinoma we so often see distinct masses of cancer-cells side by side with normal glandular alveoli.

While the general features of the growth are of a most irregular character, and while in its growth the configuration of the cells changes much to accommodate them to their new environment, and while lack of specialization has greatly increased the size of the cells, which no longer are functional, yet there is a certain tendency or inclination exhibited by these prodigal or, more correctly speaking, exile cells, which shows us that they retain within them the desire to obey the laws which governed the lives of their dutiful forefathers.

In order to understand this well let us study the processes which take place in the formation of secondary cancer.

It need scarce be pointed out that, the growth of cancer being in the lymphatic spaces, it is the most simple accident for single cells or groups of cells to become dislocated and carried off by the current of lymph to the neighboring lymphatic glands. Study of cases shows this to be of every-

day occurrence, and no fact is better established than that cancer most frequently gives metastasis by the lymphatics.

Following these cells (they generally are single cells) to the lymph-glands, much interest attaches to their future development. The structure of lymphatic glands, except in the lymph cords and nodes, being loose reticular tissue full of spaces and capable of great extension, the epithelial cells brought here are perfectly free and independent to grow unrestrainedly.

The cells which start these metastatic growths are all cancer-cells, not normal cells, for not only do the appearances of the cells differ from the normal epithelium of the part, but we have the added clinical evidence that secondary growths rarely occur until the primary growths have attained some size and age. These cancer-cells, though so different from the ancestral cells of the gland, are healthy normal epithelium, just as both the pug and the greyhound are healthy normal dogs, though so different from their wolf-parent. Not only is this normal condition illustrated by their flourishing development and reproduction, but by the much more remarkable fact that *they make distinct efforts at the formation of alveoli.* To be sure, the efforts of these exiled cells are crude, huge, and ungainly, much like the parasol which Robinson Crusoe manufactured, yet we find in this tendency to conform to type which is so remarkable the evidence that the cells are normal.

In the plate which accompanies this paper an attempt has been made to illustrate these alveolar forms taken from numerous secondary cancers. In some cases the alveoli will be found nearly perfect, in others crude, while in one an abortive effort is shown.

It is quite possible that similar forms occur in the primary tumor, but as this occurs in a gland having ducts as well as alveoli, it is well-nigh impossible to point out a newly-formed alveolus as distinct from an old one. The explanation of this alveolar formation is not beset with many difficulties. Indeed, it seems quite simple. For some incomprehensible reason it seems to be the proclivity of these cells to divide in one plane so as to form lines or surfaces when free. When, however, they begin to multiply in a spherical-shaped or irregularly-curved cavity, the spreading edges of the cellular growth, resisted by the surrounding tissue, conform to the curve of the wall of the cavity until in a sphere the opposite sides meet and a cellular lining is formed, or in the case of an irregular cavity, a partial lining is formed with irregular processes of cells extending off into the irregular parts. When the specimen is secured at this stage of development, distinct and well-formed alveoli are found, but if the specimen be secured later, the alveoli may have disappeared, for the continuous proliferation of the cells causes more to be produced than suffice for the lining, and some are crowded out into the cavity, where a solid mass of cells is observed.

It seems that in lymphatic glands the proper conditions for this peculiar growth are present in the reticulated mesh-work as well as the lymph-vessels, and it may be observed in most cases. While it is impossible to prove

it by experiment, it may be concluded that the majority of the cellular masses which occur in lymphatic glands originate as alveoli formed by the proliferation of single cells.

This, which may be termed the organo-formative tendency of the cancer cells, offers itself as an argument against the theory that cancer is caused by epithelial parasites. It has already been pointed out that secondary growths probably originate from single cells. If the proliferative impulse to which the cell responds was due to the activities of a parasite, that impulse, hence the parasite, must come with the cell which is to proliferate to its new field of action. This is unlikely; for the cells occupied by parasites are diseased cells whose protoplasm is distended by the parasite, while the nucleus, nearly crowded out of existence, appears as an indented, shrunken body pushed off to one side. It is difficult to conceive such a cell being the founder of the flourishing communities which we have discussed. The only alternative which presents itself seems to be that the same liquid current which brought the cell to the gland must also subsequently bring the parasite to stimulate this cell to multiplication, which, while a sufficiently plausible idea for us to entertain for a moment, must be rejected, not only because of the unlikelihood that the parasite will find the cell when once arrived in the gland, but also because the entrance of the parasite into the cell renders it unfit for propagation. The cell could not have propagated before the arrival of the parasite, because until the parasite is present there would be no stimulation. The only way out of the difficulty would be to assume that the metastatic growths arise from dislocated masses of cells consisting of cells free of parasites and cells occupied by parasites, which has already been declared improbable.

Aside from all speculation, our endeavors to find the so-called parasites —psorosperms, coccidia, or whatever they may be—in the groups of early arrivals always have failed, and when detected in lymphatic growths at all, they were found in the large masses of old cells, where degenerations easily take place and render their diagnosis difficult. These large masses of cells contain many karyokinetic figures, and are thus supposed to be in rapid growth. More probably the growth is as slow here as elsewhere, the large number of mitotic figures simply depending upon the large number of cells present.

CLINICAL LECTURES.

CHOREA.

CLINICAL LECTURE DELIVERED AT THE CHARING CROSS HOSPITAL.

BY JOHN ABERCROMBIE, M.D., F.R.C.P.,

Physician to the Charing Cross Hospital, to the Foundling Hospital, and to the Hospital for Sick Children, London.

Chorea Sancti Viti, or St. Vitus's dance, is a disease of children and young adults; my observations to-day will have reference almost solely to the disease as it occurs in children, by which I mean those who have not yet reached the period of puberty.

The onset of the disease is usually gradual, and commonly the nature of the child's ailment is not for some time recognized, or, indeed, even suspected. The child is thought to be careless, wilful, obstinate, and so forth, and only too frequently punished accordingly. In an ordinary case with gradual and insidious onset, the first symptom observed will be a certain clumsiness in the child which is not usual with him, he drops things which he has previously been able to carry with perfect safety, fumbles in dressing himself, and has an awkward gait, which to a trained eye is characteristic enough, but which to the eye of the well-nigh exasperated teacher or parent seems to supply final and convincing proof that the child's behavior is due to wilful perversity; the child in question seems to dawdle when walking, knocks his feet against each other, and to the ignorant and thoughtless seems to be behaving carelessly and with want of due respect.

As the child gets worse, the clumsiness increases till the child has no voluntary control over any of his muscles, which are affected with involuntary, purposeless, non-rhythmical movements, the frequency and extent of which will depend upon the severity of the case; in the worst cases the movements are so violent that the patient may be thrown out of bed by them. Sometimes even in moderately severe cases the movements remain in abeyance, and are only evoked when the child is asked to do something; this is well shown in one of the two patients we have in the wards now. When the movements are not very obvious, ask the child to hold its hands out in front of him, when you will probably see twitching first of one muscle or group of muscles and then of another. If you do not, tell the child to hold his hands up straight over his head, when the wrists will at once show some over-extension on both sides, or on one only if the affection has

been much more marked on that side. Chorea is rarely, if ever, absolutely limited to one side, but it is often very much more marked on one side than the others; such may be spoken of as cases of unilateral chorea, and not of hemichorea, as is unfortunately sometimes done, for this term has been applied to a totally different disease.

In all except the mildest cases there is generally some difficulty in protruding the tongue: either it is protruded with a jerk and as suddenly withdrawn, or the child takes a long time to put it out; that is so in one of our patients, you will observe that about a minute elapses after she is told to put out her tongue before she succeeds in doing it, though no doubt she is really trying to put it out all the time. Speech-troubles are common, often consisting of a thick and indistinct utterance, which may fairly be ascribed to the impaired movements of the tongue, but also often amounting to absolute speechlessness, which may depend in part upon defective articulation, but also is in part almost certainly due to cerebral affection.

These cases of complete speechlessness are almost always associated with a more or less expressionless type of face, so much so that it is quite possible with a little want of care to mistake a severe case of chorea, when the movements are in abeyance, for one of imbecility. I think it more than likely that in these cases there is impairment of mental function, but as the child cannot answer a question and cannot put into action the muscles of expression, it is almost impossible to form any opinion as to his intelligence. Choreic children are apt to be very emotional and will laugh immoderately about a trifle, or much more frequently have a sudden outburst of crying without the smallest discoverable reason; we saw a good instance of that in the younger of my two patients a few days ago. Sensory disturbances must be very rare, or else they are overlooked.

The heart's action is sometimes irregular: this has been ascribed to chorea of the heart-muscle, a theory that I have never been much disposed to adopt; I think it more probable that a little dilatation is the cause, at any rate the irregularity almost invariably disappears very speedily when the child is kept in bed, though the movements may show no sign of diminution. In all cases of chorea it is quite as important to pay attention to the condition of the heart as it is in cases of rheumatism. Endocarditis is very common, but the presence of a murmur does not necessarily indicate this, as undoubtedly occasionally a hæmic murmur is met with, nor when it is due to endocarditis does it imply that the heart condition is incurable; I have known instances where signs of organic heart-disease have completely disappeared. Pericarditis is occasionally met with, and immensely increases the gravity of the prognosis, in fact it is one of the causes of death, both in children and in adults. The younger the child affected with chorea the more likely it is that the heart will be affected; under five years old the heart would be very unlikely to escape, after twelve it would be a little unlikely to be attacked. The endocarditis in all these cases is to be regarded as purely rheumatic, at any rate it possesses no characters by which it could be distinguished.

Another rheumatic manifestation that choreic children are apt to develop is the formation of little subcutaneous nodules. They consist of fibrous tissue, and are formed in the fibrous tissues over bony prominences or aponeuroses, or along the sheaths of tendons. Their favorite situations are the patellæ, the olecranon processes, the tips of the spines of the vertebræ, the occipital and frontal ridges, the malleoli, and the tendons at the wrists. They are neither tender nor painful, they are not attached to the skin, and are mostly so small that they require to be looked for. They do not last very long, but fresh nodules may come out in the place of those that have disappeared. They are very seldom met with except where the heart is already affected, and almost always gravely; in my experience almost uniformly in these cases the heart-disease has been progressive and has led to a fatal termination in a comparatively short time. Another rheumatic manifestation sometimes met with in cases of chorea consists in the development of patches of erythema circinatum. They are not nearly so common as the nodules, nor have they, so far as I know, much value in regard to prognosis. The ordinary duration of an attack is, I think, somewhere from six to ten weeks; cases of course may vary to any extent in severity, but do not often remain excessively mild throughout. The mode of onset will give some clue as to the probable severity, a sudden onset presaging a severe attack. The most severe case I have ever seen in a child was in a girl aged eight and a half years, who went to a school-treat about which she was very excited beforehand, and when she came back in the evening she was quite bad with chorea; in her the movements were excessively severe, even the muscles of the eyeballs being affected. In these very severe cases you get rapid wasting, owing, no doubt, mainly to the great difficulty there is in feeding the patients. Cases of this severity are more common in young adults and pregnant women, and are very dangerous. One form occasionally met with is that known as the paralytic. A child is brought for loss of power on one side of its body, and if there is evidence of mitral disease, the temptation to make an off hand diagnosis of embolic hemiplegia is great; but a little care in making the examination will generally detect an occasional muscular twitch either on the apparently paralyzed side or on the other, and the imbecile look to which I have already referred will help to save from error; the history of the onset too will not be consistent with the idea of an embolic hemiplegia, and in any case the appearance of choreic movements in the course of a few days will finally silence any doubt there may have been in regard to the diagnosis.

Intercurrent disease, such as scarlet fever if severe or typhoid fever, will cut short an attack of chorea, but as the patient becomes convalescent from the interrupting disorder the choreic movements reappear; a mild intercurrent disorder would have no effect on the chorea.

Termination.—In the vast majority of cases in children the recovery, so far as the chorea is concerned, is complete. I have never known an instance of incomplete recovery, though, unfortunately, no inconsiderable number

are left with permanent damage to the heart. Second and subsequent attacks are quite common, but the liability to the disease generally ceases about puberty, and the young adults in whom we meet the disease have not, as a rule, had attacks in childhood. Children very rarely die from chorea; they occasionally die with it. Death is generally traceable to some heart affection and cannot be due directly to the severity of the chorea; we had an instance of this not long ago in the hospital. In these cases either myocarditis supervenes on endocarditis or pericarditis is set up; but the mortality even so is very small,—less than one per cent., I believe.

Etiology.—Chorea is very common in both sexes: there may be a slight preponderance of cases in girls; I cannot say. Attacks are commonest between the ages of five and twelve; the youngest case I have known of was that of a little girl three years and four months old; in her it followed on an attack of acute rheumatism, and she developed heart-disease. In regard to causation, the two most prominent of the exciting causes are fright and overwork at school. In cases of alleged fright the history should be scrutinized with some care; in many instances the alleged fright turns out to have been too indefinite to be of any importance; but if we get a history that the child was very much upset the rest of the day and passed a very restless night tossing about or talking in her sleep, and the next day or very soon after was noticed to be choreic, we are then, I think, justified in accepting the causal relationship of the fright. Sometimes we may add fear as a causing factor, as when a child falls down and breaks a jug; here the fear of the consequences probably plays as important a part as the undoubted fright which the child receives. Of course hundreds of children are frightened every day by a variety of causes without becoming choreic, but this only suggests that there must be a predisposition, into the nature of which we shall inquire directly. Frequently the mother will volunteer that she knows of no cause of the attack "unless it is the school." Of one child I was told that he was rather bothered about his lessons; he had gone to a new school and they seemed rather severe with him; he had only been at that school three weeks; they used to give him the cane for the most trivial things, and he seemed to have a great horror of it. Surely with such a history as that we are justified in saying that sufficient cause for the child's chorea had been shown. In these cases we have distinct evidence that the child's lessons are always on his mind; he may be a dull child and in perpetual fear of the practical results of his not being able to get his sums right, or he may be an exceptionally brilliant child and proportionately ambitious, always competing with and striving to beat children much older than himself. Of course in these cases also we require some predisposition.

I know of no facts which support the theory that chorea can be contracted by imitation, and my experience leads me to be strongly opposed to such a theory. One argument will suffice. If the theory were well founded we ought frequently to meet with chorea in two or more members of a family at the same time, but such an occurrence is excessively rare.

I have already stated that some predisposing cause is required before the exciting cause can induce chorea, and this predisposing cause is the rheumatic diathesis. I believe chorea is the nervous expression of rheumatism. In a small proportion of cases the attack of chorea follows closely on acute rheumatism, in a larger percentage there will be a history of rheumatic pains, but in more than half the cases no history of anything that could fairly be called rheumatism, so far as the patient is concerned, can be obtained; but in about one-half of these a history of the recurrence of rheumatism or chorea will be found either in the brothers and sisters, parents, or uncles and aunts. In the remainder we have only to wait a few years and we shall, as I believe, and have frequently verified, find abundant evidence, either in the shape of actual rheumatism, an insidious endocarditis, or nodules, of the existence of the rheumatic diathesis.

Pathology.—No constant lesions in the nervous centres have been found, and such changes as have hitherto been described may fairly be considered to be the results of the disease and not its cause. Bearing in mind the clinical features of the disease, and especially the fact that recovery is invariably complete, we may regard the symptoms as due to the presence of a widely-spread functional disturbance of the motor and psychical areas of the brain. In cases where heart symptoms have been present during life we shall find endo- or pericarditis on post-mortem examination.

Treatment.—Absolute rest, both of body and mind, is essential, and therefore, even in the very mildest cases, the child must be kept at home lying down on a sofa, and all lesson-books must be forbidden. In all other cases the child must be kept in bed; in a severe attack the child should be in a bed with sides, lest he should fall out, and the sides must be well padded. In very severe cases the child should be slung as in a hammock. It is only in the slightest cases that the child is able to feed himself, and in all others he must be fed with a spoon, and, as he will be unable to masticate his food properly, it must be given in such a form as to render this unnecessary; minced meat, strong beef tea, milk puddings, milk, and cocoa should form the chief articles of his diet. Sleep is also of great importance, and if necessary chloral or morphine should be administered, or sometimes bromides will be useful. The drug treatment of chorea is of far less importance than the general management; arsenic is the remedy most in vogue, and children generally bear it well, its long-continued use, however, is liable to give rise to a certain amount of pigmentation about the neck and trunk which, in female children at any rate, will be thought objectionable by the parents, though it will probably disappear in time. When the children are anæmic I often give iron. Rheumatic manifestations or heart complications would be treated on general principles. In chronic cases douches to the spine, shampooing, massage, and gymnastics may be recommended.

GUNSHOT WOUND OF MASTOID PROCESS; SARCOMA OF HUMERUS; OLD COMPOUND FRACTURE OF KNEE.

CLINICAL LECTURE DELIVERED AT THE PENNSYLVANIA HOSPITAL.

BY JOHN ASHHURST, JR., M.D.,

Barton Professor of Surgery and Professor of Clinical Surgery in the University of Pennsylvania ; Surgeon to the Pennsylvania Hospital, etc.

GUNSHOT INJURY OF THE MASTOID PROCESS.

GENTLEMEN,—The first patient whom I show you this morning is a man who has received a pistol-shot wound just back of the ear and over the mastoid process. There is only one wound, and it is therefore probable that the ball still remains. Even, however, where there is but one wound the ball may have escaped. A spent ball may drop out by its own weight, or a ball may be so deflected as to make a complete circuit, and eventually pass out by the opening of entrance. Nor, on the other hand, does the presence of two wounds prove that the ball has gone through the part and escaped. Two balls may have entered at the same wound, and one may have escaped while the other remains; or a ball may be split into two portions, one coming out while the other remains. We may have a number of openings all made by the same ball. After the battle of Gettysburg I saw a soldier who had sustained five gunshot wounds all inflicted by the same ball. He was shot while his arm was raised, and had a small grazing wound of the forearm; then the ball had perforated the upper arm, and finally had passed through the chest, coming out posteriorly. After Antietam I saw a soldier who had three wounds in his thigh which evidently had been inflicted either by one ball dividing into two, or by two balls entering at separate openings and coming out at the third. You cannot, therefore, by the number of wounds, decide positively as regards the number of missiles, nor whether the missile has made its way through or not. If we have two wounds, however, we usually infer that the ball has come out, and if there is but one wound we infer that it still remains.

The question of the propriety of exploring the wound must be decided in each individual case. There is a strong popular impression that the safety of the patient requires the removal of the ball. Of course, other things being equal, it is desirable to remove the ball, and in most cases of gunshot wound it is right to do this. There are, however, circumstances under which it is better to allow the ball to remain. For instance, if on careful examination of the wound you find that, if the ball is lodged at all, it is in a position whence it would be almost impossible to remove it, the line of prudence would be to allow it to remain. When, again, the ball ap-

pears to be lodged in such a position that it will be likely to produce little harm, it may be better to allow it to remain than to attempt to get it away. Where the ball is lodged in a bone it will, as a rule, unless removed, cause destructive inflammation, with caries and necrosis, and it is therefore better, under such circumstances, to try to remove it. I do not feel certain that in this case I shall find the ball, but, as the wound is comparatively superficial, and in a part where if a ball were allowed to remain it might do harm in the future, the proper course is to make an exploration. If the ball is lodged in the bone at all, it is probably in the mastoid process. If we find it there, it may be necessary to remove a portion of the bone, either with the trephine or gouge, in order to get the ball away. A great many efforts have been made from time to time to devise methods of recognizing the position of balls by other means than simple exploration. The most common measure is to use what is known as Nélaton's probe, which was devised by the French surgeon of that name, who used it upon the Italian general Garibaldi. Garibaldi was wounded in the tarsus, and it was considered by the majority of his surgeons that amputation was necessary. Nélaton, who was called in consultation, examined the foot, and was satisfied that what was considered to be a deeply-seated portion of necrosed bone was really a ball; and he believed that if the missile was extracted the patient would get well. It occurred to him to devise this probe, to make clear to his own mind and to that of the other surgeons the presence of a ball. One end of the probe is provided with a porcelain bulb, by rubbing which against the suspected object it is possible to tell whether this is of lead or not. If what is supposed to be the foreign body is lead, it will make a mark on the porcelain; if it is bone, there will be no mark made. Nélaton thus demonstrated in Garibaldi's case that there was a ball present, and this being removed, the operation of amputation which had been suggested was avoided.

Very ingenious forms of apparatus have been devised to demonstrate this point. One instrument pinches away a piece of the offending substance, and by another chemical tests can be applied. A little acid may be introduced on the end of a probe, so that the suspected substance shall be acted upon, and a small portion then withdrawn for chemical examination. Electrical tests have been used, and may be employed successfully if the ball can be touched. The usual plan is to have a probe attached to a wire connected with a galvanometer, and the delicate needle is deflected at the moment of contact between the probe and the metal substance. In many cases, however, particularly where the attempt has been made to demonstrate the presence of the ball without absolute contact, the effort has failed. In President Garfield's case, although it was thought that the position of the ball had been recognized in this way, the surgeons never felt sufficiently satisfied to recommend an operation, and when the illustrious patient was dead the ball was found in an entirely different situation.

I shall first make a curved incision, including the wound in the skin.

I find thus that there is an opening in the mastoid process, through which the ball has entered, and by enlarging this opening slightly I at once come upon the ball, which I remove. It seems to be almost intact. It remains simply to smooth off the edges of the opening and put it in the best position for repair. The cavity is carefully washed out with an antiseptic solution, and packed so that it will heal from the bottom. In dressing the wound I place a little piece of protective first, so as to prevent the gauze from adhering to the edges of the wound. [The patient made a good recovery after the operation.]

SARCOMA OF THE UPPER END OF THE HUMERUS.

This patient is brought to us for diagnosis. Two months ago a swelling appeared in the upper part of his arm, and, as you see, it has taken the form of a globular mass involving the upper portion of the humerus, apparently originating at the junction of the epiphysis and the shaft. It spreads upward to the clavicle and also over the posterior surface of the scapula, but I do not think that the scapula itself is involved. The patient's own supposition is that he is suffering from an abscess, but I have no hesitation in saying that the growth is a sarcoma involving the upper portion of the bone. Abscess can readily be excluded. There is, in the first place, no history to account for an abscess. Then on palpating the tumor it is not distinctly fluctuating, although it has that "semi-fluctuating" feel, as it is sometimes called, which characterizes tense vascular growths. You notice that it spreads over the anterior portion of the chest, and that the superficial veins are enlarged. The patient is evidently in a cachectic condition. He has lost weight. There is also an elasticity about this growth which is characteristic of sarcoma. We might have an enchondroma at this point, but that would be harder and more nodulated, and the part would not be so evenly enlarged. It is possible that there are cysts in this growth, for sarcomata often contain cysts, but the semi-fluctuating sensation may be produced simply by the succulence of the tumor. There is a good deal of œdema of the parts below, as a result of pressure upon the axillary vein. By examining the axilla we find that the tumor comes close to the chest, and embraces both artery and vein. Whether it is a central growth, originating in the medullary cavity, or, which is more likely, a subperiosteal sarcoma, we cannot say with certainty. From its rapid increase, and from its tendency to spread to neighboring parts, I infer that it is subperiosteal rather than central.

In regard to treatment, there is only one remedy which would afford a hope of benefit, and that is amputation at the shoulder-joint. It might be necessary to remove a portion of the scapula if that were found to be implicated, but I think it possible that the growth simply overlaps the scapula without involving it. The clavicle is free. Amputation is of course an operation which is attended by risk, and the circumstances must be carefully explained to the patient that he may decide for himself. When in cases of

sarcoma the disease is less extensive than it is here, it is sometimes justifiable to attempt excision of the upper portion of the bone. The growth is apt to recur, but as regards the immediate result the operation may probably be successful.

If the surgeon is called upon to excise the upper portion of the humerus for tumor, the best operation is to take up a large deltoid flap, which exposes the parts better than is done by the ordinary longitudinal incision which we prefer for traumatic excisions, or excisions for chronic disease of the articulation. In these cases of tumor it is better to take a large deltoid flap, as in Dupuytren's amputation. Where, however, the disease is as extensive as it is here, spreading down over one-third of the humerus and over the scapula, filling out the axillary space and also overlying the chest-walls, excision is out of the question. The only remedy is amputation.

An interesting feature in connection with the growth of osteo-sarcomata is to observe their favorite localities. In the upper extremity they occur most frequently at the upper end of the humerus and at the lower ends of the radius and ulna. In the lower extremity they occur at the lower end of the femur and at the upper ends of the tibia and fibula. They may of course occur in other parts, but as a rule they occur in these positions, and it is to be noticed that the points at which morbid growths are most frequently met with correspond to those at which the normal growth of the bone occurs. In the lower extremity the limb grows mainly from the epiphyseal lines above and below the knee-joint, while in the upper extremity the growth is from the upper end of the humerus and the lower end of the radius, or at the shoulder and at the wrist. These differences depend upon the direction of the nutrient artery of the bone, which varies in the upper and in the lower extremities. In the lower extremity the greater nutrition is about the knee, while in the upper extremity it is at the upper end of the humerus and the lower end of the radius.

SEVERE COMPOUND FRACTURE OF TIBIA AND FIBULA.

The patient who will now be brought in has been in the hospital for a long time. He was admitted about one year ago, having sustained a compound fracture of the tibia and fibula at the upper third, opening the knee-joint. It was doubtful whether or not it would be possible to save the limb, but Dr. Hunt, under whose care the patient was, decided to make the attempt. The patient did well for a time, but then became extremely ill. Large portions of the bone became necrosed, and the man was in danger of death from exhaustion and septic poisoning. This was three weeks after his admission. Dr. Hunt now made free incisions into the knee, which contained pus, removing portions of the tibia and fibula, and providing for thorough drainage. The upper end of the tibia was found to be split into two portions, and these, with the corresponding portion of the fibula, were removed. The condyles of the femur did not appear to be injured, and were not disturbed, so that the operation could not be said to be an excision

of the knee, but rather an excision of the upper portion of the tibia and fibula. After this operation, which was really quite as grave as excision of the knee, the patient did not do very well, and amputation appeared almost unavoidable. In fact, amputation was recommended at that time by all the surgeons who saw him, and would unquestionably have given him the best chance of getting well. The patient was, however, unwilling to have his limb removed, and there was therefore nothing to do but to await results.

A month afterwards the patient was decidedly better, the wound gradually cicatrizing, and by the end of three months bony union was firm and the wound was healed. After this there arose secondary complications in the way of disease of the bone. A sinus formed, from which there was slight discharge. Six months after the operation there was fluctuation at the upper part of the knee, and an opening was made, allowing the escape of pus. At this time Dr. Packard was in charge of the case, and he found that the sinus communicated with a cavity in the position of the knee. He again advised amputation, which was again declined. For two weeks the patient was quite ill, with high fever and constitutional disturbance. He then began to improve, but the leg remained in about the same condition. Peroxide of hydrogen, permanganate of potassium, and other agents were used by injection, without favorable result. Every now and then small pieces of bone came away. When I took charge of the ward, nearly a year after the original injury, I found the leg in the condition which you see. There is an opening communicating with a large cavity in the upper portion of the tibia. Every few weeks the patient has had attacks of acute inflammation of the tissues over the bone, and some carious masses have come away with the discharge of pus. Meanwhile the anchylosis continues firm, and if the patient were relieved from these repeated attacks of inflammation and suppuration he could probably walk on the limb. What I purpose to do is to enlarge this opening and remove the anterior wall of the bone-cavity, and thus make a perfectly open wound which may heal from below. The condition now present is analogous to that described by Dr. Markoe as a chronic sinuous abscess of bone, which differs from what is called Brodie's abscess, or the circumscribed abscess of bone, simply in having an external opening. In this condition of sinuous abscess of bone you will find a very small sinus, or a small ulcer, and at some point of that ulcer you will find that the probe will pass into a cavity. There may be quite a large cavity within, communicating with the external air through this small opening. The mechanical conditions are such that the abscess cannot heal. If you open an abscess in the soft parts the tissues collapse, and in all probability there will be rapid healing. If you have an abscess in bone and it is opened, the parts cannot heal because the walls of the abscess are firm and resisting; the mechanical conditions are such that the walls cannot collapse, and you may have a suppurating cavity remaining for years. Under these circumstances the only proper mode of treatment is to lay open the parts thoroughly, in order to have an open cup-shaped cavity instead of a narrow

flask-shaped cavity. There is no question as to the necessity of an operation here, and I think that there is a fair hope that by an operation we shall be successful in affording permanent relief.

We first apply the Esmarch bandage and tube. I enlarge the wound upward and downward, and push off the periosteum with the soft tissues. It may be necessary to make a crucial incision, but if I can get along with the longitudinal incision it will be better to do so. I do not want you to infer that we gave this patient bad advice in recommending amputation. The surgeon must not be governed by possibilities, but by what his clinical experience and his knowledge of the literature of the subject tell him is the best mode of treatment. Nineteen out of twenty persons with an injury of this kind would have died unless saved by amputation, and this man's survival is exceptional. I am sometimes rather glad to have a patient decline operation, because it gives me an opportunity, with a clear conscience, to study the natural history of the case, and to see what will occur. I find that it will be necessary to make a crucial incision here. Having exposed the bone, I remove the anterior wall with a gouge. I find that the diseased bone is soft and carious, and that the cavity contains imperfectly organized lymph, what is often called spoiled lymph. There has been an attempt at repair which has not passed beyond the stage of granulation. The disease extends upward into the neighborhood of the position formerly occupied by the knee-joint. I find that the cavity extends through to the outer side of the tibia, and I there make a counter-opening, so that I have the cavity continuous through the bone. The best plan will be to remove all of this anterior portion, relying upon the posterior portion to keep the limb firm until repair is sufficiently advanced to enable it to support the weight of the body.

[The operation was completed as indicated, the leg being fixed with a posterior splint of binder's board and a long fracture-box. The wound slowly healed, and the patient ultimately recovered with a strong and useful though shortened limb.]

ACUTE MANIA; RHEUMATIC MULTIPLE NEURITIS; PERIPHERAL MONO-NEURITIS; ALCOHOLIC MANIA.

CLINICAL LECTURE DELIVERED AT COOK COUNTY HOSPITAL.

BY DANIEL R. BROWER, M.D.,

Chicago,

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ACUTE MANIA.

LADIES AND GENTLEMEN,—The first patient I bring before you this afternoon is twenty-one years old, born in Ireland, and a bricklayer by occupation. He is in the habit of using alcoholics and tobacco. He has had no previous illness that we have been able to ascertain. The present illness has continued for about eight months. A few months ago he slipped, fell from a scaffold, and hurt his head. Since then he has had symptoms referable to the head, but any distinct account of them is difficult to obtain. He complains of ill-defined pains in his head, and says a portion of his skull is loose.

The patient has been in the hospital for four days, and was depressed in spirits when admitted. When I saw him, a day or two ago, he was crying; was extremely depressed and miserable. Just how long that depressed state has continued I do not know. The history of the patient is very imperfect. The excited manner, expression, violent utterances, and gestures of the patient enable us to arrive at a diagnosis. The case is now one of acute mania; but he began, like all cases of acute mania, with the prodromic period of mental depression. He was the very picture of intense mental anguish when I saw him the day before yesterday.

The interesting feature of this case is that his condition seems to be due to traumatism. The excessive use of alcohol and tobacco may have much to do with laying the foundation for the attack. He has doubtless had a severe head-injury, inasmuch as he was insensible when brought to the hospital. The scar which you observe on his head was the site of an operation, made under the impression that there was a depressed fracture.

Like all cases of mania, he is in a happy state of mind. His facial expression shows self-satisfaction, confidence, contentment, quite as much so as the opposite condition which you saw the other day. When I first saw him there were deep longitudinal furrows in the occipito-frontalis muscle, the result of the muscle being in a state of contraction, a condition which accompanies profound mental depression.

His mental condition to-day is one of self-satisfaction, just the reverse of the mental state we found him in the other day. I have no doubt that the present condition of things is due to the combined effect of alcohol, tobacco, and traumatism.

I desire to call your attention to the patient's hands. Please notice the intense capillary congestion; this is a sign that is very common in insanity, and it will sometimes help you materially in making a diagnosis. This intense capillary congestion is due to vaso-motor paresis, and I have no doubt that there is a similar condition of circulation in the brain. You see the same condition of the circulation in the feet also.

Of course, in a case like this, there is no difficulty in making a diagnosis. The question is, What shall be done for the patient? A person so intensely excited as this man is should, as speedily as possible, be placed in an institution provided for such cases. This patient belongs to the Detention Hospital, an institution which is a stepping-stone to the insane asylum. He will have to be sent there immediately. I think a great deal can be done for these patients while arrangements are being made to transfer them to insane hospitals that will sometimes modify the subsequent history of the cases. This man requires a certain amount of rest. He must have a certain amount of sleep. In his present condition, as a rule, sleep is best induced by a combination of the bromide of potassium with chloral hydrate. It will probably take thirty grains of the bromide of potassium with thirty grains of chloral to make him sleep. The least possible amount of drugs should be given to these patients. There is no advantage whatever in attempting to keep a man like this asleep all the time. A great mistake is often made in the home treatment of these cases by attempting to keep them under a continuous narcotic influence. You should secure for them eight or nine hours of comfortable sleep. During the melancholic stage, the condition in which I found him the other day, opium or some of its preparations gives the best results. Opium is not so useful during the maniacal stage, but during the period of mental depression opium, codeine, or morphine will, as a rule, give the best results. You need now something of a more depressing character. Opium is not a depressant such as the bromides and chloral are.

The next important point in the management of these cases is to feed them. They usually eat freely. Melancholic patients do not; they often refuse food, and then must be fed by force, with the nose-tube, for example. The patients all require an abundance of food; eggs, milk, and a moderate amount of alcohol are the ideal foods. Combine them in eggnog and you have an excellent diet.

The next important indication of treatment is elimination. In a large number of cases there is constipation, which must be attended to, and a pill of aloes and myrrh is the best cathartic for the average case of insanity in its early stages, if the patient will take it. You must also attend to the kidneys. Renal insufficiency may require the use of gentle kidney stimu-

lants, such as digitalis and alkalies. The skin also demands attention, and a warm bath followed by vigorous friction sometimes is of much service.

Flushing out the colon, if it can be done, is of benefit in the beginning of these cases. You will sometimes find that the colon has been loaded for months with fecal accumulations. There are certain cases that you cannot medicate on these principles. You undertake to give them medicine and they refuse it, but we have some drugs that can be given to such patients at times without difficulty. The hydrobromate of hyoscine, for example, given in about the one one-hundredth or one-fiftieth of a grain, is almost tasteless and it can be put in the milk and eggs, and the patient not know it is there. It can be used also in tea or coffee, and it has a sleep-producing effect. When it does not meet the indications of the case, it will become necessary to secure sleep by hypodermic injections of morphine combined with hyoscine, in doses of one one-hundredth of a grain of hyoscine and one-half or one-third of a grain of morphine, and these hypodermics must be repeated often enough to secure eight or nine hours' sleep in every twenty-four hours.

RHEUMATIC MULTIPLE NEURITIS.

In walking through the wards of the hospital the other day I saw several cases of an affection of the nervous system that is rarely seen in college clinics. There are two kinds of inflammation of nerves. There may be a single nerve involved, then we call it a mono-neuritis, or there may be an inflammation attacking many nerves, which is called a poly-neuritis or multiple neuritis. Multiple neuritis is a condition of the nervous system that is very rarely seen in college clinics, because such patients are not able to get there, and in the work we propose to do in these Friday afternoon clinics we shall endeavor to show you, as far as possible, cases that cannot be seen at college clinics.

This patient was admitted to the hospital with a diagnosis of rheumatism. She had acute inflammatory rheumatism fourteen years ago. She has always lived in Chicago, and tells us that she rarely uses alcoholics. Her present illness began eight weeks ago, when she complained of pains in her knees, arms, calves of the legs, and down through the ankles.

She has since gradually lost the power to move her legs. Her symptoms now are pain and paresis. Her legs are smaller than they were before; indeed, you notice quite marked atrophy. In the upper extremities she does not complain of pain, but you notice atrophy and impairment of muscular power. Pressure over the nerve-trunks produces pain.

Motor paralysis, pain, and atrophy may accompany spinal disease. Why is not this a case of myelitis? We have pain, motor paralysis, and muscular atrophy. These three things occur in transverse myelitis. It cannot be inflammation or myelitis of the posterior horns of the cord, because there is too much atrophy. It cannot be inflammation of the anterior horns. There is sufficient atrophy for inflammation of the anterior horns of the

cord, but there is too much pain. We do not have atrophy in inflammation of the posterior columns of the cord, but it might be an inflammation of the entire structure of the cord (transverse). Why is it not a case of transverse myelitis? If she had subacute or chronic inflammation of the spinal cord involving its entire structure, the sphincters of the bladder and rectum would be both implicated, but the functions of the bladder and rectum are properly performed. Then again, there is tenderness over the nerve-trunks. In cases of myelitis you would not have tenderness over the nerve-trunks; you would have involvement of the sphincters of the bladder and rectum. So that the paralysis, atrophy, and pain are due to peripheral disease. It is not one nerve but many nerves that are involved in this case. We therefore have to deal with a case of poly-neuritis or multiple neuritis. There is a certain amount of obscurity in the course of this case. Rheumatism seems to be the only thing to account for the neuritis. Twenty out of every thirty cases of multiple neuritis are alcoholic, the remainder being due, in great part, to diphtheria or la grippe. In this case we have a form of neuritis that is not very common, the auto-toxic form of the disease, that comes from poisons that she has generated in her own body. This is doubtless a case of rheumatic multiple neuritis. The patient has been thoroughly treated by rheumatic remedies. An important point in connection with cases of rheumatic multiple neuritis is that patients are not improved very much by the remedies which are used in rheumatism. After the rheumatic poison has set up an inflammatory condition in the nerves, the thing to do is to fight the inflammation and not the process out of which it seems to have grown. The iodide of potassium is very valuable in these cases, combined with a liberal diet, tonics, and the use of the electric (galvanic) current. The galvanic current should be used in this way: All of the inflamed trunks should be treated with a mild galvanic current, slowly passing the positive electrode over the painful nerves, and the negative placed at the cervical spine. By treating the patient daily with the constant current of a mild degree of intensity—two or three milliampères—she will be materially benefited. These patients need rest in bed; they must have remedies that will relieve the pains. Often heat will be of service, and this may be aided by phenacetin, antipyrin, or acetanilide, but in some cases morphinæ sulphas is necessary to stop the excruciating pain. In the alcoholic neuritis, which is the common form, of course the use of alcohol must be given up entirely; and remember always that these alcoholics will deceive you if they can.

To produce sleep in these cases the hyoscine hydrobromate in one one-hundredth or one-fiftieth grain is often very useful.

PERIPHERAL MONO-NEURITIS.

Here is a man who has lost the power of his left arm. He cannot entirely shut his hand and cannot bend his elbow. He says his fingers feel as though some one was sticking pins in them. He has pain, paræsthesia, and paresis of the left arm. He was struck on the shoulder by a policeman

two days ago. This is a case of peripheral mono-neuritis. There is vaso-motor disturbance in the patient's arm; you notice its lividity. Unless repair takes place very soon in this case, we will have muscular atrophy also. The patient is an inebriate, and alcoholism makes the nerves very easily take on inflammatory action. The probability is that if he had not been drinking hard the result we observe now would not have followed traumatism. Traumatism and alcoholism together have resulted in impairment of the nerve by an inflammatory process. This is a case of mono-neuritis just as the other was one of multiple-neuritis.

ALCOHOLIC MANIA.

This man was admitted to the hospital last night. He presents a picture of delirious mania, due undoubtedly to alcoholism. He is at present laboring under violent excitement, which must be subdued. I do not suppose that we can induce him to swallow anything at the present time. The only way to subdue violent excitement in these cases is by hypodermic medication, and the combination I gave you a short time ago—morphine and hyoscine—is well suited to such a case. Give him one-quarter of a grain of sulphate of morphia and the one one-hundredth of a grain of hydrobromate of hyoscine. This combination will subdue the intensity of the maniacal excitement. As soon as the violence is a little subdued, then medicate him by the mouth. I presume, like most cases of acute alcoholism, that the man has had little or nothing to eat. In the treatment of acute inebriety give capsicum along with the food: make a good rich broth of mutton, and put into it liberal doses of capsicum. It is an admirable stimulant and does no harm in cases of acute alcoholism. This man needs a great deal of food.

Every now and then it is necessary in some of these cases, like the patient before you, to add to your treatment some alcohol. Alcohol has doubtless been a part of his daily allowance for years, and it is sometimes necessary, in order to protect their brains from permanent destruction, to add to your treatment a little of it. It is sometimes surprising how, if you add a little alcohol in cases of acute delirious mania, rapidly the violent symptoms will subside. I use in the treatment of these cases a combination of tincture of nux vomica, tincture of capsicum, and the compound tincture of cinchona. This is given in appropriate doses to inebriates as they come in one after another. Sometimes we add a little alcohol to it, and gradually get rid of the alcohol as their passion for it is subdued. These patients should be given a reasonable amount of sleep, and for this there is nothing better, perhaps, than a combination of bromide of potassium and chloral hydrate, fifteen or twenty grains of each. It may be necessary to add tincture of hyoscyamine. For the average case of acute alcoholism, give the patient plenty of food during the day, a reasonable amount of sleep during the night, pay attention to elimination, and very soon there will be relief of the symptoms.

These cases generally have a favorable prognosis. By putting the patient under such treatment as I have indicated, the acute delirious mania will disappear in four or five days.

REVIEW OF MEDICINE.

MEDICINE.

IN CHARGE OF JOSEPH P. TUNIS, A.B., M.D.,

Assistant Demonstrator of Surgery in the University of Pennsylvania; Surgeon to the Dispensaries of the Presbyterian and of the Methodist Episcopal Hospitals; Visiting Physician to the Children's Dispensary of St. Clement's Hospital and to the Church Home at Angora, Philadelphia.

Heart-Sounds and Accuracy in Cardiac Auscultation. (*Lancet*, May 27, 1893.) By William Ewart, M.D. (Cantab.), F.R.C.P. (Lond.).

In a lecture delivered at St. George's Hospital Dr. Ewart discussed this subject, and arrived at the following conclusions:

1. Each of the four heart-sounds can be separately heard at favorable spots, and these spots generally coincide with the sites of intensity for each of them. In other situations paired sounds may be heard simultaneously.

2. Loudness and accentuation belong to the first sounds over the ventricular area, and to the second sounds over the second intercartilaginous spaces.

3. The pulmonary sound (in the second left interspace) has a very limited extension,—viz., hardly any towards the right, very little upward, and very little outward, but it extends a varying distance downward, generally blending with the aortic sound.

4. The aortic sound, culminating in the second right interspace, has a very wide area of extension, being loudly heard over the upper part of the sternum and over the cartilages down to the third space, except over the small area of the pulmonary sounds. It is loudly conducted to the apex. It is very distinctly heard over the greater part of the right ventricle. It is heard above and for some distance to the right and to the left of the præcordium.

5. The ventricular area is divided by a vertical line, almost coinciding with the parasternal line, but not identical in situation in all subjects, into a tricuspid-sound area and a mitral-sound area. Thus a portion of the right ventricle serves to conduct the mitral sound.

6. The mitral sound is heard loudly to the left of the said line over the fifth, fourth, and part of the third spaces, but less loudly and mixed with

the tricuspid sound over an intermediate area to the right of the vertical line.

7. A short horizontal line, extending from the curved extremity of the vertical line outward along the left third interspace, marks off the upper boundary of loudness of the mitral sound. The first sound, as heard at the right and left second spaces, is probably chiefly mitral, but perhaps compounded of mitral and tricuspid elements.

8. The tricuspid is the only systolic sound heard over the lower half of the sternum and to the right thereof. It is also heard to the left of the sternum as far as the line of demarcation; but in the neighborhood of this line it is blended (in varying degree and over a zone varying in width in different individuals) with the mitral sound.

9. At the sternal end of the third left space the systolic sound and the diastolic sound are both loud over a limited area, which may be termed the "auscultatory valve site." The loud systolic sound heard here is in the normal state probably mitral, and the diastolic sound is probably aortic; but it is possible that the other two heart-sounds may participate in their production.

Lithæmia. (*Cleveland Medical Gazette,* May, 1893.) By P. Max Foshay, M.S., M.D.

In speaking of the treatment of this disease the writer lays great stress on the proper regulation of the diet, and he considers that the best general rules to follow are those laid down by Wood. The patient's surroundings must be made as congenial as possible, and all overwork and anxiety avoided. Travel is highly beneficial. Frequent baths are an essential element for a successful result. A cool sponge-bath in the morning is useful to all, even the most anæmic. Daily evacuation of the bowels without the use of purgatives must be secured. The medicinal treatment varies greatly with the individual case. Arsenic is useful for the vertigo and hypochondria. Intestinal antiseptics, such as thymol, salol, naphthol, and salicylate of bismuth, often do good. Tonics are not indicated, and iron must not be used.

The writer states that there are more diseased conditions due solely to error in diet than probably to any other one cause. He considers that this is the broadest field in medicine open to investigation, and is sure to yield bountiful results to the careful scientific investigator.

Cholera; its Prevention and Treatment. (*Chicago Clinical Review,* April, 1893.) By Elmer Lee, A.M., M.D.

This writer says his experience has taught him that Marchand's medicinal peroxide of hydrogen, given in cupful doses, of the strength of four per cent., or even much stronger, is a better antiseptic than any other drug heretofore known in the treatment of cholera. He says the treatment would be, first, in the use of irrigations with hot water and soap, using from one to three gallons at a time twice a day for the first and second day, once a

day afterwards, if required, which is seldom the case. At the same time the stomach should be cleansed with peroxide of hydrogen and hot water, used freely, by urging the patient to drink. The feeding and nursing in such a case are the same as would be required by a patient suffering from septicæmia or other prostrating disease. The benefit which may be secured by the use of these remedies is based upon personal experience.

The article is accompanied by an illustration of Dr. Lee's apparatus for irrigating the intestines and other bowel diseases, which was first used in St. Petersburg during the cholera epidemic of 1892. The apparatus consists of a reservoir containing the irrigating solution, placed on a shelf about three feet above the level of the special table arranged in the centre for carrying off the fluid as it flows from the bowels. The solution is carried from the reservoir to the patient by a long rubber tube, to which are attached two stop-cocks for controlling the flow.

THERAPEUTICS.

IN CHARGE OF ALEXANDER D. BLACKADER, B.A., M.D.,
Professor of Therapeutics, McGill University, Montreal, Canada.

ASSISTED BY

D. I. EVANS, M.D.

Experimental Observations upon the Use of Sodium Salicylate per Rectum in Joint Rheumatism. (*Deutsches Arch. f. Klin. Med.*, Bd. li., Heft 3.) By J. J. Erlanger, M.D.

In view of the fact that in many cases sodium salicylate cannot be administered by the mouth on account of the gastric disturbance, either produced by it or complicating the rheumatism, observations were undertaken to determine whether the therapeutic effects of the drug could be equally well obtained from its administration by the rectum, without setting up local irritation. Twenty-five cases are recorded, in all of which the action of the drug was obtained without any discomfort to the patients beyond the production of some tinnitus. The drug appeared to be rapidly and completely absorbed by the rectal mucous membrane. The author recommends the following procedure: The rectum must be thoroughly emptied. About ten minims of the tincture of opium is added to every drachm of the salicylate in solution. It may be injected through a large-sized catheter passing at least eight inches up the rectum. The tube must be carefully and slowly withdrawn.

The Effect of High Altitudes in Diseases of the Lungs. (The Lumleian Lectures. *British Medical Journal*, April 1, 1893.) By Dr. C. I. Williams.

In summing up the results obtained by high altitudes in two hundred and seventeen cases of consumption, Dr. Williams thinks the following

conclusions warranted: 1. Enlargement of the thorax takes place, unless opposed by the growth of fibrosis, or by extensive pleuritic adhesions. 2. Males and females seem to do equally well, and profit most between the ages of twenty and thirty,—males over thirty and females under twenty benefiting least. 3. The climate is specially beneficial in hemorrhagic cases and in hereditary cases, and appears in the latter class to exercise a distinctly counteracting influence on the development of phthisis. 4. It is most effective in cases of recent date, though of utility in those of long standing, and to insure its full benefit at least six months', and in many cases two years', stay is desirable. Its beneficial influence is best shown in tuberculous consolidation, where improvement may be looked for in eighty-seven per cent. and arrest in fifty-seven per cent. Arrest takes place in sixteen per cent. of the patients with excavation.

High altitudes are also of service in the following:

1. Imperfect thoracic and pulmonary development.

2. Chronic pneumonia without bronchiectasis.

3. Chronic pleurisy where the lung has not expanded after removal of the effusion.

4. Bronchial asthma without emphysema.

They are contra-indicated, however, in phthisis with double cavities, fibroid phthisis, catarrhal and laryngeal phthisis, and acute phthisis of all kinds, and especially where there is much irritability of the nervous system or pyrexia. They are also contra-indicated in emphysema, chronic bronchitis, and bronchiectasis, diseases of the heart and great vessels, diseases of the brain and spinal cord, in anæmia, and in persons of advanced age.

The Treatment of Myxœdema. (*Edinburgh Medical Journal*, May, 1893.) By R. Alexander Lundie, M.B., F.R.C.S.

In this paper the author states that the cases already on record are abundantly sufficient to prove that the thyroid gland or its extract can relieve, and in some cases practically cure, myxœdema. Certain untoward effects, however, have been noticed in several cases, such as weakness, fainting fits, pain in different parts of the body, often severe, nausea, and vomiting. In two instances death from heart-failure has been recorded, but both of these cases were feeble and over sixty years of age.

The thyroid glands of sheep have been generally employed, but cows, pigs, and calves have given equally good results. The amount given has varied greatly; from one-twentieth of a gland given hypodermically to two thyroids daily by the mouth. One-fourth to one-half a gland weekly subcutaneously, or one-half a gland weekly by the mouth, is sufficient to bring about improvement, and a much smaller dose is sufficient to prevent relapse after once a condition approaching normal is reached. The author thinks that the administration of the gland by the mouth is to be preferred. The raw gland, and the liquid or solid extracts as prepared by chemists, appear in most cases to be equally efficacious.

Therapeutic Effects of Altitudes. (*Rev. Med. de la Suisse Rom.*, February, 1893.) By Dr. E. de La Harpe.

In a paper on this subject the writer divides altitudes into three principal zones: 1, Subalpine zone between seven hundred and thirteen hundred metres; 2, the alpine zone up to nineteen hundred metres; and, 3, the hyperalpine zone above that height. He considers the chief factors in the remedial action are, 1, the lowering of the temperature; 2, the energy of insolation; 3, the dryness; 4, the purity of the air; and, 5, the diminished atmospheric pressure. To those unaccustomed to the altitude the process of acclimatization takes some days, perhaps a week, during which the appetite increases, thirst is pronounced, respiration more frequent, the number of cardiac pulsations augmented, and the blood-pressure diminished. Insomnia is, at times, very troublesome. Frequent palpitations and dyspnœa occur, especially in cardiac, anæmic, and fatty subjects. Once acclimatization is complete sleep becomes natural, palpitations cease, the respirations and the pulse fall to normal. The quantity of inspired air is slightly increased; the blood is found to contain more corpuscles; the vessels are fuller, and nutrition is improved.

The Action of some of the recent Hypnotics on Pancreatic Digestion. (*British Medical Journal*, April 22, 1893.) By John Gordon, M.D.

As the result of careful experiments on the action of some of the more recently introduced hypnotics on the pancreatic digestion of starch the author summarizes the following statements: Chloralamide, antifebrin, and antipyrin did not interfere, either in strong or weak solution, with the conversion of starch into maltose or dextrin, but sulfonal and urethane in weak solutions had a slight retarding influence, and paraldehyde in similar solution a very distinct influence on this conversion.

NEUROLOGY.

IN CHARGE OF CHARLES W. BURR, M.D.,
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Insanity following Surgical Operations. (*Boston Medical and Surgical Journal*, June 29, 1893.) By G. G. Sears, M.D.

The author reaches the following conclusions:

1. Insanity after operation is identical in form with that following acute disease.

2. It may follow the most trivial operation as well as the most serious. After gynæcological operations it possibly is, and after cataract operations it probably is, more common than after other surgical procedures.

3. The number of cases is greater in women than in men, but the disproportion would be lessened and might disappear if only such operations as are common to the two sexes be compared.

4. The causes are those which induce perverted or exhausted cerebral nutrition, among which are shock, fear, or anxiety before operation, the sudden relief from strain after it, sepsis, malnutrition, and advanced age.

5. It is impossible to say that iodoform or other antiseptics may not have been the cause of some cases, in the same manner that drugs taken by the mouth may lead to mental disturbance, but these cases are probably very few in number.

6. It usually appears within the first two weeks, and may even come on immediately after the operation. If it develops after two or three months, it is probably the result of other causes, or is, at best, but indirectly connected with the operation.

7. The prognosis is not particularly good, but sixty or seventy per cent. of the cases at most recovering. Recovery is more common in men than women, and usually takes place within a few months.

8. Heredity is of comparatively slight importance, while previous mental or nervous instability is a decided factor in its production.

9. When a patient shows a marked tendency to insanity or when mental symptoms are already present, operation is attended with much danger in this respect.

10. The progress of the wound is not influenced by the onset of insanity *per se*.

Importance of Arterio-Sclerosis in the Etiology of Posterior Spinal Sclerosis. (*Medical News*, July 8, 1893.) By George J. Preston, M.D.

The lesion is practically confined to the dorsal and lumbar regions except in advanced cases. In searching for an explanation of this we find that the blood-supply of the three regions of the cord is derived from somewhat different sources. The cervical cord is supplied with blood chiefly by means of the branches of the vertebral arteries. In the dorsal and lumbar portion of the cord another set of vessels, namely, the intercostal arteries, come in. Now, these are small vessels coming off virtually at right angles to the great trunk of the aorta, and it is in vessels of this type that we find the beginning evidences of arterio-sclerosis. The mouths of these vessels become surrounded with a mass of calcareous material and their lumen more or less occluded. These vessels may be involved before there is any general manifestation of arterial change. As a result of the condition less blood goes to the spinal cord, and in consequence of this there occur atrophy and degeneration of the nerve elements. This is followed by an outgrowth of connective tissue, partly from the sheaths of the nerves, partly from the blood-vessels. With this idea of the pathology of the condition the author has treated several cases with nitro-glycerin. He reports marked improvement in the relief of pain and that two patients noticed great improvement

in walking. The dose varied from a fiftieth to a hundredth of a grain three times daily.

Friedreich's Ataxia. (Ueber hereditäre ataxie. *Berlin. Klin. Wochenschrift*, May 22, 1893.) By H. Senator, M.D.

The author reports a case, and in a discussion of the pathology of the disease puts forth the view that the symptoms do not depend upon sclerosis of the posterior and lateral columns of the cord, but upon a congenital developmental defect of the cerebellum. He holds that the changes in the spinal cord may be secondarily added, but are not an integral part of the disease.

PEDIATRICS.

IN CHARGE OF T. M. ROTCH, M.D.,

Assistant Professor of Diseases of Children, Harvard University; Visiting Physician to the Children's Hospital, Boston.

ASSISTED BY

E. M. BUCKINGHAM, M.D.,

Instructor in Diseases of Children, Harvard University; Visiting Physician to the Children's Hospital, Boston.

Morphology and Pathology of the Blood of Children. (*Jahr. f. Kinderheilk.*, 1892, Bd. xxv., p. 187, and *Revue Mensuelle des Malades de l'Enfance*, June, 1893, p. 266.) By Gundobin.

The researches are very complete, especially with regard to leucocytes; for which the author adopts the classification of Ehrlich, distinguishing three forms, lymphocytes (young form), leucocytes (adult form), and neutrophiles (aged form).

Morphology of Leucocytes in the Normal Blood of Nurslings.—In examining the blood of twenty-eight children from seven days to ten months old, the author found a mean of 12,900 (1,014,000) white corpuscles, or 1 to 395 red corpuscles, but the absolute number of the latter is nearly the same as in adults, 5,000,000. As the child advances in age the number of leucocytes diminishes, so that by three years the blood resembles that of adults. The infant's blood is richer in leucocytes, and especially in lymphocytes, the relative and absolute number of lymphocytes being three times as great as in adults, while the number of neutrophiles is twice as great. Transformation of young elements into the oldest form follows an inverse course in infants compared with adults, in that with them leucocytes preserve their young state longer, while with adults the old form predominates. This phenomenon accords perfectly with the law regulating nutritive changes in infants, by which organic waste is less abundant, more material being utilized in development. Among the causes that augment the number of leucocytes in blood, digestion alone provokes a marked leucocytosis, char-

acterized principally by considerable augmentation of neutrophiles. The weight of the child, so long as it does not pass a certain minimum, exercises no influence on the mutual relations of the three forms of leucocytes; but as soon as the minimum is passed, the proportion is disturbed by an augmentation, both relative and absolute, of the older elements.

SURGERY.

IN CHARGE OF B. FARQUHAR CURTIS, M.D.,
Surgeon to St. Luke's Hospital and to the New York Cancer Hospital.

The Treatment of Malignant Tumors by Repeated Inoculations of Erysipelas, with a Report of Ten Original Cases. (*American Journal of the Medical Sciences*, May, 1893.) By W. B. Coley, M.D.

Coley reports a case from the practice of Dr. W. T. Bull, in which an accidental attack of erysipelas cured a sarcoma of the neck, and then ten cases in which he made therapeutic inoculations of erysipelas. Among these ten cases were four of carcinoma (breast, glands, and face), which were not perceptibly affected by the treatment, and six cases of sarcoma, two of which, in glands of the neck and in the skin of the back (inguinal glands involved), were cured; two osteosarcomata and one breast were improved, and one case, also in the back, was not improved. He then analyzes these cases in connection with others of accidental and therapeutic inoculations collected from various sources. Seventeen were carcinoma, and three were permanently cured, two were improved, and one died from the erysipelas. In seventeen cases of sarcoma, seven cases were cured, and were well from one to seven years after. Of the rest, all but one, which died, showed more or less improvement. Including only the therapeutic inoculations, there were seven cases of carcinoma with one cure; while in sarcoma there were eight cases and two cures. It should be remembered that these were not favorable cases, but those which by their extent, situation, or frequent recurrence had become inoperable. In eight of Coley's cases, although repeated attempts were made, the injections for some reason did not produce erysipelas, and yet improvement was observed to follow, indicating an effect of the toxic products. Coley's first method consisted in the injection of fluid pure cultures of the erysipelas germ, sufficiently strong to cause a good reaction (104° temperature). Recently, he states, he has been experimenting with sterilized cultures to obtain these effects without the danger of employing the active cultures, which, by the way, appear to be very difficult to procure. The toxic products are obtained from the cultures by a Kitasato filter without subjecting the fluid filtrate to heat.

In a note he adds that with these products he has treated four cases of inoperable sarcoma, injecting them into the tumor itself at forty-eight-hour

intervals. A reaction similar to that of the germ itself was produced (103°). He generally fortifies the injection by adding the toxic products of the bacillus prodigiosus. The results have been excellent.

The Prevention of Shortening and other Forms of Mal-Union after Fracture by the Use of Metal Pins. (*Lancet*, June 10, 1893, 1377.) By C. B. Keetley, F.R.C.S.

Keetley recommends drilling the fragments in cases of oblique fractures transversely to the long axis of the bone, and setting in the drill-holes two steel pins heavily silver-plated, the external ends of the pins being bent towards each other at right angles (parallel to the surface of the limb) so as to overlap, then, while reduction is made by extension, the overlapping portions of the pins are wired together, grooves upon their sides preventing the wire from slipping. In this way perfect reduction is maintained even without the aid of any splint or extension, but these should be used in addition. The little operation should be conducted under anæsthesia and with full antiseptic precautions. The drill and the pins are inserted through minute punctures in the skin, not by incision, and a complete antiseptic dressing is applied. He has tried the method successfully in two cases. It is to be noted that each pin pierces only one fragment, not holding them together directly, as has been often suggested by others.

Report of the Lancet Commission on Anæsthetics from a Clinical Stand-Point. (*Lancet*, June 17, 1893, and preceding numbers.)

The commission appointed by the *Lancet* to investigate the vexed question of anæsthesia from the clinical side have published their conclusions, fathered in particular by Dr. Buxton. They think that the death-rate both under ether and chloroform can be improved by greater care in administration. They find that, owing to its lower death-rate, ether is the safest anæsthetic in temperate climes for general surgery, and that nitrous oxide gas should be employed in minor and dental surgery. Chloroform they consider "a comparatively safe body" when given by a carefully-trained person, but that it is not in any case wholly devoid of risk.

The Diagnosis and Treatment of Fracture of the Neck of the Femur in Persons in Advanced Life. (*Times and Register*, June 17, 1893.) By O. H. Allis, M.D.

The chief point of Allis's paper is the necessity of considering the age of the patient in treating fracture of the neck of the femur late in life, and to treat that rather than the injury, and, above all, not to injure the chances for bony union by trying to make a thorough examination for the exact diagnosis of the injury. He is quite radical in his application of this idea, advising the complete rejection of all forms of splints, extension, or other apparatus. He simply has the patient lie in bed, and on the first day after the injury puts a pillow between the knees and rolls him completely over

upon his sound side. This is done every day. The patient is encouraged to move the limb and to get out of bed as soon as possible,—even on the third or fourth day; but if there is much shock this is to be delayed until the shock has been recovered from, and as the patient is turned on the side every day there is little danger of bed-sores and less need for hurry.

In the discussion which followed (Philadelphia County Medical Society) Dr. J. B. Roberts stated that, while he usually employed an extension, for he thought it relieved spasm and lessened pain, he had seen cases do very well which were moved out of bed very early.

ORTHOPÆDICS.

IN CHARGE OF REGINALD H. SAYRE, M.D.,
Assistant to the Chair of Orthopædic Surgery, Bellevue Hospital Medical College, New York.

Club-Hand. (*Annales d'Orthopédie*, May, 1893.)—Dr. M. Bilhaut reports a case of club-hand resulting from a fracture of the ulnar a short time after birth, which accident was followed by suppuration and the loss of a small piece of the ulnar. In consequence of this the hand bent sharply to the ulnar side and looked almost exactly like a congenital club-hand. Several months' retention in a proper position did no good, as the hand soon assumed its abnormal direction after the removal of the splint, and the author now thinks the deformity is due to unequal length of the radius and ulna, owing to the loss of part of the latter, and that an osteotomy of the radius will have to be done in order to correct the deformity.

Spasmodic Torticollis; Cure after Excision of Part of the Spinal Accessory Nerve. (*Annales d'Orthopédie*, May, 1893.) By Drs. John Anderson and W. Johnson Smith.

The patient, a man of thirty-one, had had malaria five years previously in Bombay and had attacks at intervals since. In other respects perfectly well. Two months before admission to the Seamen's Hospital he had an attack of intermittent fever. Two weeks later slight intermittent movements of rotation began in his neck accompanied by slight pain in the back of his neck and its sides. The spasms became worse, the head being twisted from side to side twenty or thirty times a minute, the mouth being slightly drawn towards the right, and the hands trembling slightly and the knees knocking. Later, the movements took place only in the left sterno-mastoid. The movements were so violent that deglutition was much impeded and he became very weak. Internal medication for some months being of no use, resection of the left sterno-mastoid was made, and an almost immediate improvement followed, and the pain and trouble on mastication soon disappeared entirely, the only trouble remaining being slight movements of the neck when using his right hand.

Congenital Dislocation of the Hip. Before the Surgical Society of Paris (*Annales d'Orthopédie*, May, 1893) Dr. Coudray presented a little girl three and a half years old on whom he had operated for unilateral congenital dislocation of the hip in the dorsum of the ilium, by injection of a chloride of zinc solution, after Lannelongue's method. The head of the bone was first brought well down towards the acetabulum under chloroform narcosis, and six injections of a fifteen-per-cent. solution of chloride of zinc were made, depositing fifteen drops altogether along the upper rim of the acetabulum. Three weeks later a second injection was made. No inflammation followed. The child was kept in bed, with extension to the leg and firm bandages around the pelvis for five months, and had been walking for a year when shown. Before operation the head of the femur could be pushed about three and a half centimetres above Nélaton's line. Its range of motion after the operation was only one and a half centimetres.

Detachment of the Ligament of the Patella; Treatment by Suture; Recovery. (*Medical and Surgical Reporter*, June 24, 1893.) By Wm. Barton Hopkins, M.D.

The patient, a large, healthy man, stumbled and fell, striking his right knee against the cobblestones. Examination showed change in the contour of the joint, some effusion, and the patella situated high up on the thigh. No loose fragment of the patella could be detected. A longitudinal incision seven and a half inches long in front of the joint was made, the patella brought down to its normal place, and the front surface found to have been entirely denuded of ligament and fibrous covering. By means of eight silkworm-gut sutures the parts were kept in apposition; three of the sutures passing through small holes drilled in the apex of the patella and through the stump of the ligament. The other sutures united the fringe of ligament with the tendon of the quadriceps femoris. A dressing and posterior splint were applied. Five months after the accident he was allowed to begin flexing the leg, and when shown could walk without limping, and the patella was freely movable. Dr. Hopkins says sixty-six cases of ruptured patella ligament have been reported, including detachment at upper and lower extremity and rupture in the continuity. Of these he has referred to fifty-five. In all but three of the cases which were treated some kind of appliance suitable for fractured patella was used, with results said to be fair or good. In the three cases operations were done. In one case, Sands, of New York, sutured the parted ligament to some fibrous tissue attached to the tuberosity of the tibia. In the other case, McFarlane, of Toronto, stitched the fragments to the apex of the patella. Both used silver wire. In the third case, the stump of the ligament and some fibrous tissues at the apex of the patella were scarified, but no sutures were used.

OBSTETRICS AND GYNÆCOLOGY.

IN CHARGE OF JOHN M. KEATING, M.D., LL.D.,
Colorado Springs, Colorado; Fellow of College of Physicians of Philadelphia; Gynæcologist (Emeritus) to St. Agnes's Hospital, Philadelphia; formerly Visiting Obstetrician to the Philadelphia Hospital (Blockley); Editor "Cyclopædia of the Diseases of Children," etc.

Surgical Treatment of Acute General Peritonitis. (Discussion in the New York Obstetrical Society, February 21, 1893. *New York Journal of Gynæcology*, April, 1893.)—Dr. G. M. Edebohls thought they could all agree on the subject of localized acute peritonitis, and that as soon as they could find the best route for reaching the localized collection of pus, it was best to evacuate the abscess. He thought, however, that the author presented altogether too favorable a picture of the surgical treatment of acute general peritonitis. He had cited a number of cases of acute general peritonitis following appendicitis in which he had operated. He could not but envy the author's condition of mind which enabled him to approach these operations with certainty in his mind as to just what procedure should be adopted, for the majority of surgeons, he believed, were very uncertain as to what should be done; they had no invariable rule of procedure and were compelled to treat every case individually. Four or five years ago there was an outbreak of puerperal septicæmia in the vicinity of St. Francis's Hospital, and consequently many of the cases reached his service there. Many of these were examples of acute general peritonitis, and he performed a number of cœliotomies upon them. He found that when he could evacuate the localized collection of pus, even when the symptoms of sepsis were severe, and whether or not he proceeded through Poupart's ligament or through the abdomen, the cases as a rule recovered; but of at least five or six cases of acute purulent general peritonitis following abortion or labor in which he had performed cœliotomy, every one terminated fatally.

There is another class of acute purulent peritonitis, those due to leakage of pus-tubes or rupture of an ovarian abscess. The operative treatment of such cases is usually successful, but when the peritonitis becomes general, it is almost as hopeless as a case of purulent peritonitis.—Dr. Lusk said that he had formerly held the opinion that operative cases did not do well in summer, but last summer, after lecturing on a case which he thought illustrated this point very well, the patient informed him confidentially that she had syphilis. This, of course, explained the sluggishness of the healing process in her case. Cœliotomy certainly gives the best prospect of success where there is a purulent collection in the abdominal cavity. But puerperal septic general peritonitis is an exceedingly fatal disease whether or not abdominal section be performed, unless it is the result of a pus-tube which can be removed, and so remove the cause of the trouble. A septic peritonitis in these puerperal cases ordinarily is only one feature of the septicæmia; the streptococci attack the red corpuscles and destroy them, and this causes death in spite of abdominal operation.—Dr. Polk, regarding the treatment

of general peritonitis, agreed with Dr. Edebohls that after the disease had become general, especially if of the variety which originated in the appendix, very little could be done to save the patient. The author had not made sufficiently clear the necessity for impressing upon every one the fact that the only time an operation is of service in cases of peritonitis is before general infection has occurred, especially if the peritonitis originates in the appendix or is of puerperal origin.—Dr. Currier endorsed what had been said about the general hopelessness of abdominal operations in cases where sepsis is general, and he thought this also was the position taken in the paper. It was perhaps a question whether it is not better in the interests of good surgery not to interfere in cases where sepsis has existed for some time and where cœliotomy will most probably precipitate a fatal termination.—Dr. Wylie did not believe in idiopathic peritonitis, and modern pathologists, he thought, do not recognize such a condition. Abdominal surgeons frequently see cases of general peritonitis, yet they are not allowed to operate in the early stages when the patient is in good condition. He had operated on eight cases where there was pus with the result given in the paper, and they should not therefore say that these cases were hopeless, for his statistics did not support this view. No matter how bad the case, if there is any chance of saving life by operation, then he believed in resorting to it. There may be puerperal cases where it is useless to operate, but he knew of no method offering any better chance. It is utter nonsense to say that there is any special difference between peritonitis arising from suppuration around the appendix and peritonitis arising from other causes; the only difference is that the peritonitis from the appendix is apt to be much more virulent than that from a ruptured tube. The principles of treatment, however, are the same in both conditions.

Vesical Tuberculosis in the Female, etc. (*New York Journal of Gynæcology and Obstetrics*, March, 1893.) By Stewart Paton, M.D.—This is an extremely interesting paper and an important one. The author states that by the new and perfected methods of examination of the bladder and urine the possibility of an error in diagnosis is much less than it was a few years ago. Tuberculosis of the bladder is said to be much more common in the female than in the male,—four times greater according to Strümpell,—which statement the author corroborates. He states that it is doubtful if the bladder is ever primarily affected by the passage of tubercle bacilli through the glomeruli of the normal kidney. Cases of intractable cystitis, which seem to be made worse by local treatment, should always arouse suspicion. This is particularly true if bright blood appears in the urine,—generally a few drops after urinating,—though blood does not appear in the urine usually until a late period in the disease. He called special attention to the *urethral pain*, which is generally described by the patients as a "throbbing pain," so severe as often to detract from the bladder, and this is found in cases where no tubercular lesion is discovered, either at the neck of

the bladder or in the urethra. The character of the urine should be carefully noted. It is generally limpid, pale yellow or straw-colored, and at times of marked hyperacidity. It may or may not contain bladder-cells from the superficial or deeper layers, but frequently countless numbers of bacteria are present. These are of the ordinary fermentative variety, and occasionally, by staining, the bacillus tuberculosis is found. The centrifugal apparatus should always be used, and, if this fails, inoculation experiments upon guinea-pigs should be undertaken. A cystoscopic examination would probably reveal local ulceration. In regard to treatment, where ulcers are visible with the cystoscope curettage is recommended. The patient can be placed for a few days on salol, to render the urine as innocuous as possible, suprapubic cystotomy performed, and the surfaces thoroughly curetted.

OPHTHALMOLOGY.

IN CHARGE OF J. E. HARPER, A.M., M.D.,
Chicago, Illinois.

Indications for Enucleation of an Eye. — Dr. Edward Jackson (*Polyclinic*, April 15, 1893) summarizes the indications for this operation as follows:

1. The presence in the eye of a malignant new growth, as glioma, sarcoma, or tuberculosis. This indication is imperative, no matter how much vision the eye retains.

2. The presence in the eye of a foreign body, with irido-cyclitis. If the injury be recent and the inflammatory process still active, and the patient cannot remain under observation, an eye with anything less than thoroughly useful vision should be sacrificed.

3. The presence of a foreign body in a blind eye.

4. Blindness with diminished tension of the eyeball, following perforation either by traumatism or corneal ulcer, most urgent after traumatic perforation of the exposed portion of the sclera.

5. Blindness the result of irido-choroiditis without perforation of the eyeball, if the patient cannot remain under observation.

6. Sympathetic inflammation, provided the exciting eye does not possess vision sufficiently good to be weighed against the chances of the sympathizing eye.

7. The actual presence of sympathetic irritation; not the risk of it, unless the patient is likely to be out of reach of surgical aid.

8. Persistent pain in a blind eye, sufficient to annoy its possessor or tempt him to the use of analgesic drugs.

9. Serious disfigurement of a blind eye, even if free from pain or risk of causing sympathetic disease.

Influence of the Sympathetic on the Eye.—Heese has contributed to *Pflüger's Archiv* an important paper dealing with this interesting question, and an abstract of it appears in the last number of the *Neurologisches Centralblatt.* The question of the existence of a special dilator muscle for the pupil has long been a vexed one. The effect of the sympathetic in causing dilatation has been ascribed to contraction of the iris vessels by some, and to an inhibitory influence on the sphincter of the iris by others. Heese claims, by experiments on the cat, to have demonstrated the existence of a special dilator of the pupil. He has also investigated the mechanism of protrusion or retraction of the eyeball. These, he says, depend, firstly, on the condition of contraction of the blood-vessels of the orbit, and, secondly, on the contraction of the orbital muscle. Both are innervated from the cervical sympathetic. The influence of this is strongest on the orbital muscle, so that stimulation of the sympathetic causes protrusion of the eyeball. In the rabbit, however, the vaso-motor influence is predominant, and stimulation of the sympathetic in this animal, by contracting the orbital blood-vessels, causes retraction of the eyeball.—*Lancet,* April 8, 1893.

Eye Disease and Menstruation.—Dr. A. Maitland Ramsey (*Lancet,* April 15, 1893) reports the following. In a case which I have at present under my care,—a woman aged thirty-seven, who has suffered from inflammation of the cornea and sclerotic for eight years, during the last of which she has been under my own observation,—the eye is during an inter-menstrual period, with the exception of staining of the sclerotic and opacities of the cornea, almost well, whilst at the recurrence of the menstrual epoch there is a relapse. Two or three days before menstruation begins the eye becomes acutely inflamed and very painful, and remains in this condition for the first few days after the menstrual discharge has appeared. Treatment, either local or constitutional, has up till now had very little effect in modifying the course and duration of these inflammatory attacks, which pass off spontaneously, only, however, to reappear as acutely as ever at the next monthly period.

Prolapsus of Iris following Cataract Extraction.—In the *Medical and Surgical Reporter,* April 8, 1893, Dr. Edward Jackson advises that "the active treatment had better be preventive, the placing of the corneal incision well in front of the iris, doing an iridectomy where the iris cannot be fully returned to the normal position at the time of operation, and the regular instillation of eserine if it is so returned. Then, if the prolapse does occur some time after the operation, treat it on the expectant plan, and the ultimate result will be almost as good in these worst cases of simple extraction as it is in the average case of extraction with iridectomy.

"The occurrence of prolapse somewhat protracts the process of healing, increases, at least for a time, the amount of post-operative astigmatism, and

prolongs the period during which the astigmatism is diminishing, and so delays the final adjustment of glasses. But my impression is that so far as its permanent usefulness and continued sound nutrition and freedom from liability to other disease are concerned, an eye that has suffered prolapse after the simple extraction of cataract is as safe as an eye that has suffered iridectomy during the operation."

Syphilis of the External Auditory Canal.—At the meeting of the Clinical Society of Maryland (*Southern Medical Record*, March, 1893) Dr. Harry Frudenwald related the case of a colored man, twenty-five years of age, who had a chronic discharge of pus from his ear. The external auditory canal was filled with polypi. He made no improvement on the usual treatment for aural catarrh. It was found that the patient had recently had a chancre, and it was seen that the growth had the appearance of syphilitic papules. He was put upon antisyphilitic treatment, and within a very short time the polypi had entirely disappeared, leaving a clean auditory canal and a normal drum head. Syphilis may affect the internal ear or middle ear, but it rarely affects the auditory canal, and this is evidently a rare case.

DISEASES OF THE LARYNX, NOSE, AND SURROUNDING STRUCTURES.

IN CHARGE OF J. PAYSON CLARK, M.D.,
Physician for Diseases of the Throat, Massachusetts General Hospital; Physician to the Throat Department, Boston Dispensary.

Headache in Diseases of the Nose and Throat. (*Münch. Med. Woch.*, January 31, 1893.)—M. Bresgen says there are two principal causes for headache in diseases of the nose, swelling of the mucous membrane and a narrow nostril. Generally through deviation of the septum one nostril is narrower than the other. In all these cases there is frequently at a special spot in the nose a feeling of pressure experienced which may shortly precede the headache. Certain parts of the swollen mucous membrane will be found unusually sensitive. In suppurative processes in the nostrils there is also marked swelling of the mucous membrane and headaches occur easily, especially if the pus has not a free outlet. Great emotional excitement of any kind has been repeatedly noticed as a cause of increased nasal swelling and subsequent headache. Also in the headache sometimes accompanying menstruation the writer has noticed increased swelling of the nasal mucous membrane.

Parenchymatous Injections in Diseases of the Tonsils. *Münch. Med. Woch.*, April 18, 1893.)—Von Ziemssen recommends the injection of a carbolic acid solution in inflammatory affections of the tonsils. He has

made these injections in a great number of cases with excellent results. One-half of a cubic centimetre of a one-per-cent. solution of carbolic acid is injected. The injection is painless, and the almost immediate improvement of subjective symptoms is striking. The temperature falls quickly, and after one or two injections the affair is over.

A New Operative Procedure Applicable to the Opening of Peritonsillar Abscesses. (*Le Mercredi Méd.*, January 18, 1893.)—Dr. A. Ruault says that, as the pus in spontaneous evacuation of these abscesses escapes between the anterior pillar and the tonsil, opposite the upper part of the tonsil, or through one or several of the crypts, it is best to make the artificial evacuation in this place. To separate the anterior pillar from the tonsil the writer uses a blunt rigid stylet, bent at right angles about one and a half centimetres from the end. This is introduced above and pushed between the anterior pillar and the tonsil, being drawn forward and inward to free the adhesions of the tonsil to the pillar. Sometimes a cutting hook like a pruning-knife is necessary, keeping close to the surface of the gland. By this method (which the writer has used for two years) one generally opens the abscess very quickly and with comparatively little pain under cocaine. When the abscess is back of the tonsil, it is necessary to pass the stylet between the tonsil and the posterior pillar of the fauces.

Notes on Acute Tonsillitis. (*Med. News*, April 29, 1893.)—Dr. S. Solis-Cohen believes in the importance of the distinction between rheumatic and non-rheumatic cases for therapeutic purposes. To aid in the recognition of rheumatic cases the following data may be of use:

1. History of previous rheumatism or an inherited rheumatic tendency. 2. A tendency to frequent recurrence of the affection. 3. The occurrence of symptoms, local or general, before any evidence of inflammation is visible in the throat. 4. The coincidence with sore throat of one or more rheumatic or rheumatoid symptoms. 5. The existence of any joint symptoms. 6. Urinalysis, excessive acidity, excess of urates, etc., rarely albuminuria. 7. The occurrence of anomalous eruptions.

In rheumatic cases the following gargle is recommended: ammoniated tincture of guaiac, four drachms, shaken up with two drachms of compound tincture of cinchona and six drachms of refined honey, to which are slowly added two ounces of concentrated infusion of coca and enough water to complete six ounces, in which are dissolved ninety grains of salicylate of soda. At intervals of a half to two hours a tablespoonful is used in divided portions as a gargle and a portion swallowed if thought advisable. Where there is much glandular swelling inunction of a fifty-per-cent. ointment of ichthyol is used externally. Salol is preferred to salicylate of soda; for adults five grains in powder every two hours until tinnitus is produced or thirty grains (the daily maximum) taken, unless there should be vesical or renal irritation or discoloration of the urine. A combination of the tincture

of the chloride of iron and salicylate of soda is used in anæmic cases, and for those not especially anæmic cinchonidine salicylate, five grains every two, three, or four hours. Milk diet is preferred, and the bowels are kept open.

In non-rheumatic cases the guaiac gargle is made with chlorate of potash, salicylate of soda, or borax, and alternated with a spray or gargle of a five-volume solution of peroxide of hydrogen. The addition of two per cent. cocaine is grateful when there is much pain. The internal use of calomel is mentioned. The tonsillitis of influenza usually does best when treated with cinchonidine salicylate. Herpetic tonsillitis derives a special importance from its liability to be mistaken for diphtheria. In the diagnosis the coincidence of herpes labialis is an evidence of some value. As the tendency is to recovery, palliative treatment alone is necessary.

Cancer of the Vocal Cord. (*Wien. Klin. Wochensch.*, April 13, 1893.)—Professor Störk reports a case of carcinoma of the right vocal band for which, after tracheotomy, laryngo-fissure was performed and the diseased portion thoroughly removed; the right ventricular band and the mucous membrane of the right ventricle were then thoroughly freed from their attachments in front and brought down so as to cover the loss of substance. Before closing the larynx the appearance was as if the right ventricular band was wanting, the vocal cords being intact. The patient made a good recovery. Seven months later there was no return of the disease, the voice was good, and the new vocal cord made small movements in phonation.

DERMATOLOGY.

IN CHARGE OF W. A. HARDAWAY, A.M., M.D.,
Professor of Skin Diseases in the Missouri Medical College, St. Louis.

ASSISTED BY

C. F. HERSMAN, A.M., M.D.,
St. Louis.

Peculiar Form of Rupial Skin Disease in an Hysterical Woman.—Mitchell (*Am. Jour. of the Med. Sciences*, March, 1893) reports a very singular skin lesion which occurred in an hysterical woman, with a note by Duhring. The skin affection consisted of a rough, dark-gray crust which occupied a large part of the anterior aspect of the leg. On removing the crust a grayish-white fibrinous material was found, from the surface of which oozed a little blood. The edges of the skin about this area were thickened and hyperæmic.

The crust was found to be made up chiefly of epithelium, in which it differed from a syphilitic crust, which is composed of pus. There was no ulceration beneath the crusts, but the rete was atrophied and the papillary layer infiltrated. The process seemed to be an inflammation of low type

depending on a trophic disturbance of nervous origin. The affection under consideration bears some resemblance to keratoma and callosity.

Cocaine in the Treatment of Variolous and Varioloid Infection.—Dr. Edward Pepper, of Algiers (*Am. Jour. of the Med. Sciences*, March, 1893), thus sums up the advantages of the treatment of variola by cocaine which was first recommended by Luton. The variolous poisoning can often be arrested in a marked degree; the disorganization of the blood is less rapid and less extensive; the fever is less severe; a semi-abortion of the vesicles may occur when the drug has been regularly employed in the second stage; the divers visceral congestions and inflammations are less frequent and less intense. The author advises using a four-per-cent. solution, beginning with ten drops four times a day at ten years, and increasing the dose one drop for each year of age.

The Internal Treatment of Lupus Erythematosus with Phosphorus.—Bulkley (*Am. Jour. of the Med. Sciences*, April, 1893) reports excellent results from the internal administration of phosphorus in lupus erythematosus. He admits that the use of the drug in this disease is not new, but calls attention to it because in the recent works on dermatology there is no mention of it. To secure good results, it is necessary to administer the remedy in a special manner. Bulkley recommends Thompson's formula:

℞ Phosphorus, gr. vi;
Absolute alcohol, ʒxxx.

To be dissolved with the aid of heat and agitation, and then mixed, while still warm, with the following mixture, also warmed:

℞ Glycerine, ʒixss;
Alcohol, ʒiss;
Essence peppermint, ʒss.
Each drachm contains one-twentieth grain of phosphorus.

Fifteen drops are taken three times a day to begin with, and the dose is increased to thirty drops, increasing one drop at a time; the dose may then be still more carefully increased to forty-five drops. Those taking this remedy should be carefully watched, and at the first sign of any digestive trouble the medicine should be stopped for a time. The author attempts no explanation of the action of the drug, save that it may act in some way through the nervous system.

Lupus Vulgaris following Exposure to Tuberculous Sputa.—Corlett (*Jour. Cutan. and Genito-Urinary Diseases*, April, 1893) reports a case presenting lupus vulgaris of the face, which was of interest on account of the probable mode of inoculation. The patient, a middle-aged woman,

had been in the habit of visiting a friend who was suffering from pulmonary tuberculosis, and would at times place herself in such a position that the sputum of the patient had on several occasions come in contact with her face. The writer points out the age of the patient at which the disease developed as being unusual.

HYGIENE AND BACTERIOLOGY.

IN CHARGE OF A. C. ABBOTT, M.D.,

First Assistant in the Laboratory of Hygiene, University of Pennsylvania.

The Bacteriological Diagnosis of Asiatic Cholera. (*Zeitschrift für Hygiene und Infectionskrankheiten*, Bd. xiv., Heft 2.) By R. Koch.

In the article before us Koch calls attention to the danger that accompanies delay in the diagnosis of this malady, and cites the proper course to be pursued by the bacteriologist in order that he may recognize the disease with the least possible loss of time. In the scheme that he presents stress is laid upon the microscopic examination of the stools and the utilization of those characteristics of the organism causing the disease that appear most quickly under artificial methods of cultivation. The plan proposed by him is the one that is followed in the Institute for Infectious Diseases at Berlin, of which he is the director. By following it a positive diagnosis can be made in from twenty to twenty-four hours after the examination is begun. In order, however, for this to be reliable, Koch impresses the importance of a previous acquaintance with the organism, both in its morphological and cultural respects, and refers to the confusion and trouble that often arise from such work as this falling into the incompetent hands of those not possessing this preliminary knowledge.

The points that are to be borne in mind in pursuing the work are the microscopic appearance of the organism and its peculiar mode of grouping, as seen in the slimy particles in the intestinal evacuations; the greater rapidity of the growth of this organism over that of other bacteria with which it may be associated; the property possessed by it of producing indol as a product of growth, the presence of which is recognized by a very simple chemical manipulation; and the characteristic appearance of its growth upon gelatin, both in the form of colonies, as seen upon gelatin plates, and its peculiar development as a stab culture in gelatin.

It is essential for success that the material be subjected to examination as soon as possible after it has left the intestinal tract of the patient.

As soon as received microscopic examination should be made of several of the slimy particles that will be seen floating about in the fluid dejections. If only curved rods are present, or if they are in numbers greatly in excess of all other forms, a provisional diagnosis of cholera is

justifiable, and particularly if the arrangement of these curved rods is in linear groups with the direction of the long axes of the rods tending to point in the same direction as the long axes of the group, somewhat after the fashion "that minnows swim in schools up-stream" (Koch).

With another slimy flake prepare a set of gelatin plates. These must be kept at a temperature of from 20° to 22° C. After from sixteen to twenty hours the colonies of the "comma bacillus" will have developed to sufficient size for bacteriological examination and recognition by those familiar with them.

With other slimy flakes prepare several cultures in peptone solution, which should be made from Witte's peptone, and should be of the following formula:

Witte's peptone, 2 grammes;
Sodium chloride, 1 gramme;
Distilled water, 100 c.c.

These must be placed at 37° to 38° C., and examined at the end of each hour after the sixth hour.

If "comma bacilli" are present and capable of multiplication, they will usually be found, by microscopic examination of stained preparations, *in the upper layers of the fluid near the surface in practically pure culture* in from six to eight hours. After making the microscopic examination prepare fresh cultures in the peptone solution from the upper layers of the first set of cultures, care being taken not to shake them. With what remains of the first set of peptone tubes make the test for indol by adding to each tube eight to ten drops of concentrated sulphuric or hydrochloric acid. If comma bacilli have been growing in them, the rose color characteristic of the indol produced by them will appear.

If in connection with results of microscopic examination that would render the diagnosis probable one obtains the growth in peptone solution near the surface of the fluid, to which allusion has been made, which microscopically consists of curved rods in practically pure culture, and also by the chemical test demonstrates the presence of indol in these cultures, the diagnosis is still more in favor of cholera. There remain but the gelatin plates, which in twenty hours, at most, are ready for examination. In the examination, familiarity with the naked-eye appearances of the colonies is all-important, but this may be in a measure dispensed with if each and every colony on the plates that does not contain too many is examined microscopically by stained preparations. If here colonies are found that consist only of curved rods, staining readily with watery fuchsin, the diagnosis is no longer in doubt. The entire process should rarely require over twenty-two hours.

Occasionally cases occur in which only a few cholera spirilla may be present; in this event it is best not to use the gelatin-plate method, but to employ in its place plates of sterilized agar-agar, over the surface of which,

after they have solidified, the slimy particles are smeared. These are then placed in the incubator at 37° to 38° C., and after eight to ten hours colonies large enough for microscopic examination will have appeared. As soon as a colony is found that consists only of curved rods, cultures in the peptone solution are to be made from it; these are to be treated in the way described above for these cultures.

In doubtful cases the virulence of the cultures is to be tested. This is done by scraping from the surface of a fresh, pure culture on agar-agar as much of the growth as can be held in a small wire loop (the ordinary loop used in bacteriological work), this is finely divided in about one cubic centimetre of sterilized bouillon, and injected with a sterilized hypodermic syringe directly into the peritoneal cavity of a guinea-pig of three hundred and fifty to four hundred grammes' weight. If the culture is virulent, the animal shortly after the operation has a gradual and continuous fall of temperature, gives evidence of extreme prostration that is accompanied by a paralytic condition of the hinder extremities; it lies flat upon its abdomen or on its side, and death ensues in from eighteen to twenty-four hours.

In general this is the plan pursued at the Berlin Institute for Infectious Diseases, and it has thus far given entire satisfaction.

PATHOLOGY.

IN CHARGE OF ALLEN J. SMITH, A.M., M.D.,

Professor of Pathology in the Medical Department of the University of Texas, Galveston, Texas.

The Cause of Death in Extensive Burns of the Surface. (Zur Frage nach der Ursache des Todes bei ausgedehnten Hautverbrennungen. *Virchow's Archiv*, Bd. cxxxi., H. 3.)—From a series of observations made upon the blood, tissues, and urine of dogs previously scalded or burned to the first degree, Kijanitzen, of Kiew, concludes that in the blood, organs, and urine there is to be found under these circumstance a special poison (ptomaine) very similar to Brieger's *peptotoxin*, and obtained best by the same method by which this latter is extracted. He insists strongly that normal organs, blood, and urines subjected to the same processes and reagents afford no similar bodies. The ptomaine in question, when isolated, is an amorphous, slightly yellowish or brownish-yellow substance, with strong and disagreeable odor, readily soluble in water and alcohol, poorly in benzine and chloroform, and absolutely insoluble in ether. In its chemical and physiological properties it is very like peptotoxin. It is found especially in the organs, to a less degree in the blood, while its presence in the urine is not always to be determined. This ptomaine, as indicated by inoculation experiments, may be regarded as the cause of at least a number of the phenomena met in cases of extensive burns, as the depres-

sion of temperature, weakness of heart-action, slow, shallow breathing, diarrhœa, vomiting, somnolence, apathy, stupor, etc. As to the source of the toxine, the author suggests that it may arise from retrograde changes in the blood due to the influence of the heightened temperature and the further action of decomposition bacteria and other ferments in the organism; or that it may be a pathological product of the vital activities of the cellular elements of the tissues and blood of the burnt animal (a pathological leucomaine). Such lesions as are met with in the kidneys and other parenchymatous organs, the bloody urine, and the formation of duodenal ulcers are dependent upon thrombosis of small arteries, veins, and capillaries; although there must be acknowledged a distinct influence of the ptomaine upon the renal structures leading to inflammatory reaction. The author, moreover, recognizes the relationship of the nervous system, and in cases dying very rapidly attributes the cause of death to shock.

The Pathogenesis of Cancer. (La Pathogénie du Cancer, Recherches Cliniques. *Revue de Médecine*, January 10, 1893.)—Fiessinger, a physician of the village of Dyonnax, in a series of clinical records of cases of malignant tumors occurring within his knowledge, finds a number of instances of apparent transmission of the tumors from one person to another; and from the distribution of cancer geographically, in his experience, states that these malignant growths constantly are found in undue proportion along water-courses and the edges of forests. He believes that there is a distinct parallel to be recognized between the insects which by puncture of the leaves and bark of trees cause the growth of galls and the unknown cause of cancer, itself possibly of the same nature as these insects. The corporeal distribution of cancers, especially at mucous orifices, suggests that the cause is an external one, and the author suggests that one way of inoculation of these orifices is through the medium of unclean fingers. The author relates twenty-two observations of malignant tumors occurring in his own practice; but the most interesting series is one of ten cases related by him as occurring at Cormaranche, in the practice of Dr. Mathieu, of Hauteville. Cormaranche is a mountain hamlet with five hundred inhabitants. The houses are built along a sheet of water, and about a mile to the west there is a large marsh. All ten cases occurred along the one thoroughfare, within a distance of somewhat more than three hundred yards. The first case was a male, who died of gastric cancer in 1878; the second, a male, who died in 1879 from a cancer of the large intestine; the third, a female, the wife of the second, living in the same house, and dying from gastric cancer in 1881; the fourth, a male, died in 1885, from cancer of the stomach; the fifth, a woman, a relative of the third case, died in 1890, of a cancer of the stomach; the sixth, the sister of the last, and living in the same house, died in 1891 at Lyons, after an operation for sarcoma of the thigh; the eighth, a female, died in 1891, from cancer of the breast; the ninth, a female, related by marriage to cases five and six, died in

1892, from cancer of the uterus; the tenth case, a female, related by marriage to case eight and sister-in-law to case seven, is now affected with what is regarded as a uterine cancer. Thus in a group of eight houses situated near to each other, within a period of fourteen years, nine cases of cancer have died, including a husband and wife, dead within a few years, and two sisters living in the same house and dying within a few months of each other. It was believed by Dr. Mathieu that the public wash-houses served in some way as an intermediary in the infection, the deeper parts of the water being scarcely ever renewed, and possibly containing accumulations of cancerous detritus.

REVIEW OF ITALIAN, SPANISH, AND PORTUGUESE MEDICINE.

IN CHARGE OF A. M. FERNANDEZ DE YBARRA, M.D.,

New York,

Corresponding Member of the Medico-Chirurgical Academy of Madrid, Spain, the Argentine Medical Circle of Buenos Ayres, South America, and the Society for Clinical Studies, of Havana, Cuba.

A Case of Pellagra complicated with Syringomyelia. (*Rivista sperimentale di Freniatria*, December 31, 1892.) By Dr. G. B. Pellizzi.

This paper refers to a clinical case in which syringomyelia developed in a man suffering from pellagra, the influence exerted by this last infection seeming to increase the paraparesis. The syringomyelia did not present, however, the group of symptoms (syndrome) considered to be characteristic of the disease; but, on the contrary, it assumed the aspect of transverse dorsal myelitis, having, moreover, given rise to cyphosis and old trophic disturbances of the posterior region of the neck.

A Case of Paramyoclonus Multiplex accompanied by Progressive Muscular Atrophy. (*Annali di Nevrologia*, vol. x., 1892, pp. 99–110.) By Drs. Tambroni and Pieracini.

A young idiot girl ill with an attack of paramyoclonus multiplex,—that is, chronic clonic fibrillary spasms much more clearly evident than the feeble shakings of progressive amyotrophy,—which extended throughout the whole surface of the body, especially the upper limbs, the chest, and the face; their frequency, rhythm, and intensity were variable, the more severe access taking place during the time of repose, and greatly diminishing during exercise and sleep; the cutaneous reflexes were extremely increased; sensibility to pain was blunted. What makes this case remarkably conspicuous is the coexisting obliteration of the thenar and hypothenar eminences, and the atrophy of the interossei and lumbricales muscles of the two hands. There also existed a slight amyotrophy of the extensor and flexor muscles of the forearm, those of the shoulder, the two pectoral, the two rhomboidei,

and the muscles of the calves of the legs. The two sides of the body seemed to be equally affected.

Several Anatomo-Pathological Localizations of Dementia Paralytica. (*Annali di Nevrologia,* vol. x., 1892, pp. 110 to 120.) By Dr. H. Rossi.

In progressive general paralysis all the myelencephalon and its coverings are affected. The symptomatic variations differ in localization and intensity. The nature of the pathological changes is a slow inflammatory process which, having its origin in the blood-vessels, produces atrophy and secondary degeneration of the nervous elements (fibre and cell). The brain is unquestionably the first organ affected, and the one which is never found without lesion. Medullary sclerosis is not always present; hence, if it exists, there must be some clinical relation between the progressive general paralysis and tabes dorsalis, though the same thing is very doubtful from the anatomo-pathological point of view of these two diseases.

Absence of Characteristic Symptoms in a Case of Cerebellar Tumor. (*Gazzetta medica di Torino,* January 12, 1893.) By Dr. L. Pizzini.

A tumor occupying all the left hemisphere of the cerebellum, and part of the vermiform process, did not reveal its presence by any of the outward indications which our physiological knowledge of the little brain would lead us to expect from so extensive lesion. The patient only complained for a long time of occipito-frontal headache, due, most probably, to compression of a branch of the fifth pair of cranial nerves, and also suffered occasionally from slight vertigo.

Dr. Pizzini arrives at the conclusion that the cerebellum has not individual functions peculiar to itself, as Luciani and other authors claim, and that it is merely a reinforcing nervous organ annexed to the myelencephalon.

Psychology of Christina of Sweden. (*Rivista sperimentale di Freniatria,* December 31, 1892.) By Dr. F. de Sarlo.

This royal personage, daughter of an eminent and distinguished man (King Gustavus Adolphus) and a whimsical mother (Maria Eleonora, Princess of Brandenburg), was a vain, eccentric, weak-willed, and fanciful woman, who from her early youth, after the death of her father, received a thoroughly masculine education, was subjected to the many extravagances of her mother, and surrounded by men of much learning bound at all hazards to develop her great intelligence; so, therefore, after a brilliant but short career as queen, during which she undertook many magnanimous enterprises, she abdicated her throne, renounced the Protestant religion to which her family belonged, and, adopting the Catholic faith, went to live in Rome. From the very day of her relinquishment of royal power Christina began

to give constant and undoubted proofs of a whimsical, violent, supremely selfish character, always trying to act differently from other persons and to be conspicuous.

The author of this interesting contribution to psychiatry, after giving the above-extracted historical delineation of that queen of Sweden, comes to the conclusion that Christina was assuredly a superior woman, but being placed in the midst of uncongenial surroundings, she weakened, got discouraged, and lost the natural energy of her strong intellect, to which unhappy end her hereditary tendencies greatly contributed. She became hysterical, and this neurosis is, in Dr. De Sarlo's opinion, the only direct responsible source of all the events that mark the second period of her life.

FORENSIC MEDICINE.

IN CHARGE OF LORENZO D. BULETTE,
Of the Philadelphia Bar.

LEGAL RESPONSIBILITY OF THE PHYSICIAN FOR COMMUNICATING A CONTAGIOUS DISEASE TO HIS PATIENT.

THE mission of the physician is to cure, not to communicate, disease. And it is his duty while attending patients suffering with infectious diseases, as small-pox, diphtheria, and the like, when called upon to attend other patients not so afflicted, to take such precautionary measures as experience has proved to be necessary to prevent the communication of such disease to his patients.

A physician knowing that he has an infectious disease, or that he has been exposed to such, and who continues to visit his patients without informing them of that fact, and without proper precautions on his own part, and thus communicates the disease to one of them, is guilty of a breach of duty and of his implied contract with his patient, which, whether it be regarded in the light of carelessness, or negligence, or fraud, renders him liable for the consequent damage, including as well the suffering, danger, and loss of time, as the expense necessarily occasioned by the second disease thus produced by his own wrongful act.

The rule of law which defines the duty of a medical practitioner to his patient requires, *first*, that he bring to his task reasonable and competent medical knowledge; *second*, that he apply that knowledge in the particular case with reasonable care, diligence, and skill; *third*, that in cases of doubtful practice, that is, where two or more courses of treatment are approved and

followed by competent physicians, he use his best judgment as to which treatment is best adapted to the case in hand. The same rule also requires, *fourth*, that this judgment be an enlightened one; that it be based upon and have a due regard for the advanced state of medical knowledge at the time such treatment is administered. It is to this last requirement that attention is directed, as tending chiefly to ascertain the nature and extent of the physician's responsibility in the case suggested by the title of the present paper.

It is the legal duty of the physician to keep himself abreast of the medical knowledge of his time. Medicine is progressive. Medical theories accepted to-day are discarded to-morrow. The practice to which such theories give rise falls into disuse, as does also the practitioner who clings with mistaken tenacity to a treatment for which the sciences auxiliary to medicine have provided a better substitute. Bare mention of calomel or the lancet is almost invariably met with a smile of derision, scarcely perceptible, perhaps, but how expressive! Twenty years ago craniotomy in pelvic deformity was the rule. To-day an eminent authority affirms with the emphasis of a clinched fist that no degree of maternal malformation is an excuse for taking the life of the child; and adds that the obstetrician who, failing instrumental delivery, neglects as a last resort to avail himself of the Cæsarean section, rendered so comparatively safe by the marvellous results of antisepsis, is, as he should be, guilty of malpractice, at the very least, and liable to prosecution therefor. "A single drop of pus," says an eminent surgeon, "is evidence of the operator's negligence." These are some of the present signs in the medical sky, and serve to point out to the isolated practitioner the course to be taken by the army of medical progress.

These signs may not be unheeded with impunity. The law is alert to exact for the patient that treatment which the present approved resources of medical and surgical skill make reasonably possible. It may, for example, at no distant day, become a question for judicial determination whether the failure or refusal of the surgeon to observe antiseptic precautions will not render him liable to an action for malpractice. And so, too, in the light of recent investigations into the causation of contagion, the infection of a patient by his medical attendant may be such conclusive evidence, either of the lack of the requisite medical knowledge or of negligence on the part of the latter, as will render him liable in damages therefor. That is to say, the mere fact of the communication of such contagion will be proof that the physician has not observed all those precautionary measures that the experience of the time has shown to be necessary.

What precautions or treatment are reasonable or necessary is a question not of law, but of fact, to be determined by a jury in the light of competent medical expert testimony. And the tests employed in this inquiry are the state of medical knowledge at the time and the condition of the patient and the danger that threatens him.

The terms reasonable and necessary are elastic, and expand to include

the resources that the advance of medicine supplies. Medical treatment that a few years ago would have been reasonable is not now so considered. Treatment that would be reasonable for a patient suffering with a slight ailment would be negligent for a patient afflicted with a dangerous disease requiring the highest degree of care. And so of preventing the exposure of a patient to a dangerous contagion, the highest degree of care, or that which exhausts the preventive means that advanced medical knowledge has provided, would alone be termed reasonable, and such as would shield the practitioner from liability.

The facts from an adjudicated case[1] in which the rule, stated in the second paragraph above, for the measure of damages in cases of this kind was applied, will assist to a clearer conception of the nature and extent of the duty required of the practitioner.

The action was by a physician to recover the amount of his bill for medical services to the defendant and his family. After the plaintiff, the physician, had proved his account, it appeared in evidence that on the first visit of the plaintiff to attend the defendant he was summoned while at the defendant's house to go to that of H., a neighbor, and was then told by the wife of the defendant, who was himself very ill, that if he went to see patients sick with small-pox he must not come there, but that they would employ another physician. To this he replied, "I will not unless H. will be bound for my fees." On the next day, when he visited the defendant again, he was again told by the defendant's wife that if he visited small-pox patients he could not attend the defendant, and he replied that he would not visit any small-pox patients. About ten days after he was first called in, the defendant's wife was pressing him strongly about visiting small-pox patients, and that he must not visit them, when, without admitting or denying that he visited them, he said that he would change his clothing and there would then be no danger. It was further proved that after the plaintiff had been attending the defendant for about three weeks for fever, and when he was getting better and began to recover from the fever, he broke out with small-pox, and some time after this his son also broke out with small-pox. The defendant then proved by witnesses that while the plaintiff was attending him for typhoid fever he was also attending small-pox patients at H.'s, and also proved other facts tending to show that the plaintiff, by his visits to the defendant, had brought with him and communicated to the defendant the small-pox infection, and that there was no other means by which it could have been communicated to him.

"Upon these facts," says the Supreme Court, "it cannot be doubted that the plaintiff was *prima facie* liable to an action. Even if there had been no warning to him by the defendant's wife, it was his duty, in passing from his patients who were afflicted with an infectious and dangerous disease to others who were not so affected, to take such precautions as experience may

[1] Piper *v.* Menifee, 12 B. Mon. 465.

have shown to be necessary to prevent the communication of the infection by his own acts. But when in the very commencement of the services for which a considerable portion of the charges now in question were made, he was expressly warned by the defendant's wife, acting presumably for her husband as well as for herself and the rest of the family, that if he attended small-pox patients he must not come there, but they would employ another physician, his promises of compliance, constituting as they did the inducement and condition of his further employment, entered into and formed part of the consideration of the contract on which he sues. And whether they be regarded as being in the nature of a warranty that the family should not be subjected to the risk of small-pox by his visits, or as having been intended to lull their apprehensions and thus to procure a continuance of his employment by a delusive statement, their violation and the consequent damage constitute in our opinion an available ground for reducing the recovery for the services in the performance of which the violation of these promises and the consequent damage occurred. After the conversation which occurred during the first and second visits of the plaintiff, the defendant and his family had a right to believe that the plaintiff was not visiting small-pox patients, inasmuch as he had in effect promised that he would not visit the defendant while he was attending such patients, or that he would not attend such patients while he was visiting the defendant."

And, accordingly, the physician was not allowed to recover the amount claimed for services in curing the patient of the small-pox communicated to him through such physician's own negligence.

The same rule of law that prescribes the degree of care the physician must observe to prevent the communication of a contagious disease to a patient applies also to hospitals; and whatever is here said of the duty of the physician applies equally to them.

BOOK REVIEWS.

CLINICAL DIAGNOSIS: THE BACTERIOLOGICAL, CHEMICAL, AND MICROSCOPICAL EVIDENCE OF DISEASE. By Rudolph v. Jaksch, Professor of Special Pathology and Therapeutics, and Director of the Medical Clinic, in the German University of Prague. Translated from the third edition and enlarged by James Cagney, M.A., M.D., Member of the Royal College of Physicians of London; Physician to the Hospital for Epilepsy and Paralysis, Regent's Park; Late Demonstrator of Anatomy, St. Mary's Hospital Medical School. With numerous illustrations (partly in colors). Charles Griffin and Company, Limited, London. Philadelphia: J. B. Lippincott Company, 1893.

No book on this subject approaches this work of Dr. v. Jaksch. It is generally recognized as a Court of Last Appeal upon all questions with which it treats. For the examination of the secretions of the body there is no better guide in existence.

The illustrations are well chosen, and are the best of their kind. Every practitioner of medicine should have the book, even if he has only leisure to consult the illustrations. The colored drawings of tubercle bacilli prepared from the sputum of a tubercular patient are so excellent that the reality of these micro-organisms ceases to be a matter of doubt to any one who sees this excellent reproduction. The present edition, which is the second American edition, is doubly valuable, as considerable new material has been added to the old, and several changes have been made in the arrangement of the text.

Manual of Clinical Diagnosis. By Otto Seifert and Friedrich Müller. Third Edition. Revised and corrected. Translated, with the permission of the authors, by William Buckingham Canfield, A.M., M.D. (Berlin). With sixty illustrations. New York and London: G. P. Putnam's Sons, 1887.

This little book contains a vast amount of information crowded into a few pages. It is the first publication of the kind that has ever attempted the reproduction of temperature charts of such common febrile conditions as measles, scarlet-fever, small-pox, chicken-pox, typhoid-fever, etc. The student of medicine will do well to memorize the text, and the practitioner will be surprised to find how many points there are upon which special stress is laid in the examination of urine, sputum, etc., which he has long since forgotten. The book is diagrammatic and thoroughly trustworthy. The essential points of clinical diagnosis are clearly and tersely stated, and the little volume concludes with a table giving the doses of all the officinal preparations at the time of publication. It is of a size to be conveniently carried in the coat-pocket.

Diseases of the Stomach. By C. A. Ewald, M.D., Extraordinary Professor of Medicine at the University of Berlin; Director of the Augusta Hospital, etc. Authorized translation from the second German edition, with special additions. By Morris Manges, A.M., M.D., Attending Physician to Out-door Department, Mount Sinai Hospital, New York City, etc. With thirty illustrations. New York: D. Appleton & Company, 1892.

The medical public have been awaiting the publication of a book by Dr. Ewald for a long time, and have at length been given an opportunity to profit by his writings on a subject with which he is so thoroughly familiar. The present work has been carefully prepared, and presents a vast amount of information. No one can read its pages without acquiring an understanding of the anatomy, pathology, and physiology of the stomach, while the most rational treatment of the diseases peculiar to this organ is well described. Special stress is laid upon the diagnosis of the various diseases of the stomach, and the different methods of examination are carefully detailed. Every careful physician should consult its pages, and no medical library will be complete without it. There are a number of original drawings in the text thoroughly illustrating the points which they are intended to elucidate. The publishers offer this book in a most attractive style, and have prepared it with their usual thoroughness.

The Students' Quiz Series. Gynæcology. A Manual for Students and Practitioners. By G. W. Bratenahl, M.D., Assistant in Gynæcology, Vanderbilt Clinic, New York, and Sinclair Tousey, M.D., Assistant Surgeon, Out-Patient Department, Roosevelt Hospital, New York. Edited by Bern B. Gallaudet, M.D., etc. Philadelphia: Lea Brothers & Co.

An anatomical order has been followed in discussing the various diseases which affect the female generative organs, which is the most rational plan to adopt. The book is well illustrated, and contains a number of diagrams and drawings which render the understanding of the text more complete. The diagrammatic representation of

complete inversion of the uterus, partial inversion of the uterus, and polypus of the uterus gives an excellent idea of the correct diagnosis of these conditions. The book has been carefully prepared and fulfils the intentions of its compilers.

THE STUDENTS' QUIZ SERIES. DISEASES OF CHILDREN. A MANUAL FOR STUDENTS AND PRACTITIONERS. By C. Alexander Rhodes, M.D., Instructor in Diseases of Children, New York Post-Graduate Medical College. Edited by Bern B. Gallaudet, M.D. Philadelphia: Lea Brothers & Co.

The necessity for arranging the contents of this book in the form of question and answer renders any consecutive reading of its pages a matter of difficulty, but to the student this is no disadvantage. Its greatest usefulness will therefore be among the latter class. Its practicability will depend on the closeness with which it follows the course of lectures on diseases of children which the student may be attending. This little book has been compiled with great care, and the best authorities on the subject have been consulted. It can be heartily recommended to the profession.

THE STUDENTS' QUIZ SERIES. GENITO-URINARY AND VENEREAL DISEASES. A MANUAL FOR STUDENTS AND PRACTITIONERS. By Charles H. Chetwood, M.D., Visiting Surgeon Demilt Dispensary, Department of Surgery and Genito-Urinary Diseases, New York. Edited by Bern B. Gallaudet, M.D., Demonstrator of Anatomy, College of Physicians and Surgeons, New York; Visiting Surgeon Bellevue Hospital, New York. Philadelphia: Lea Brothers & Co.

The growing importance of genito-urinary surgery is well illustrated by this little book, and the various questions which must arise for settlement by the practitioner whose duty it is to attend such cases are well expressed. The arrangement of question and answer is a valuable one for the student, and this little book should be a considerable aid in preparing for examination. For the general practitioner it will be found to contain many practical suggestions for the treatment of venereal troubles; but, of course, it can never take the place of larger and more complete works on this subject.

SYSTEM OF PRACTICAL THERAPEUTICS. In three volumes. By Hobart A. Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College, etc., Philadelphia. Philadelphia: Lea Brothers & Co., 1891.

The advances made in all branches of medical learning during recent years have placed therapeutic measures on an increasingly rational basis, while at the same time the extraordinary number of remedial agents which are being constantly brought forward tends to produce a feeling of uncertainty when the active practitioner endeavors to decide which he will use for some particular disease which he may be treating. This system of therapeutics is in advance of anything of the kind that has ever been published, and deals not only with the remedies best adapted to control or cure disease, but also goes minutely into the etiology, pathology, symptomatology, and diagnosis of diseases, both medical and surgical. It is as much a system of the practice of medicine as it is a system of therapeutics.

The busy practitioner will always find assistance for his daily work between the pages of this admirable publication. The text has been prepared with great care by men eminent in their particular branches of work, and the contributors have been drawn from all parts of the world. No expense has been spared in the preparation of the illustrations, nor in the typography of the work. No one portion of these three volumes can be selected as deserving more praise than another. In a word, the System of Therapeutics has more than fulfilled the intentions of the editor and contributors, and is a most attractive and thoroughly reliable addition to medical literature.

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ORIGINAL COMMUNICATIONS.

NOTE ON THE DISTRIBUTION AND FUNCTIONAL IMPORTANCE OF LARGE NÆVOID GROWTHS.

BY H. MONTAGUE MURRAY, M.D., F.R.C.P.,

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So little importance has hitherto been attached to the position of large nævoid growths in and under the skin that their exact distribution has hardly ever been recorded. There are, however, to be found in medical literature a certain number of cases in which such growths seem to have corresponded either to one side of the body or to an upper or lower extremity, with or without the involvement of the adjacent side of the chest or abdomen. In some of these cases there was considerable enlargement of the deeper parts in addition to the increase in size produced by the growth itself. This is occasionally accompanied by increased function of the part covered by the affected skin. These facts suggest that part of the enlargement may therefore be of the nature of a true hypertrophy,[1] and also that the site of the growth may be capable of a morphological explanation. Inductions such as these are of course only justified by the similarity on comparison of a large number of instances, and it is with the hope of stimulating the publication in sufficient detail of cases bearing on these questions that the following instance is here placed before the notice of the profession.

E. W., aged twenty-one, a laborer, in robust health, has had from birth

[1] Increase in size, weight, and functional activity beyond the limit of health without any other structural change.

a cutaneous nævus involving the whole of the left upper extremity. The upper half of the left side of the thorax is also partially covered with a similar kind of skin. The exact distribution of this can be easily seen in the accompanying plates, prepared from photographs (see Figs. 1 and 2). It will be observed that with the exception of a small patch in the interscapular region the nævus does not extend beyond the middle line either in front or behind (Fig. 2). The whole of the left upper extremity is completely covered, but the nævoid growth is much thicker over the lower part of the limb, and in the hand and corresponding half of the forearm the subcutaneous tissue is distinctly though but slightly involved. These parts are generally blue and the upper parts bluish-red, but the patient states that some years ago the whole extremity was habitually blue. The left upper limb is distinctly longer and thicker than the right (see Fig. 1), and the increase in size is not limited to the soft parts, for the bones themselves are also longer and broader. It is difficult to estimate the size of the muscles, but, in addition to the general measurements given below, it may be stated that the patient himself is convinced that the affected limb is longer and stronger than its fellow. He is by no means left-handed, yet if he is engaged in work requiring especial strength, or if he experiences any difficulty in reaching any point, he is quite sure that it is the left arm and hand which most easily enable him to accomplish his purpose.

The measurements of the chest do not show any noteworthy difference between its two sides. It is by no means unusual to find the sides of the thorax differing half an inch from one another in their external measurements from spinous processes to mid-sternum, and though the right is in nearly all cases the larger of the two, the difference is not sufficiently constant to base upon it any conclusion concerning the interpretation of the measurements in this case beyond, perhaps, the probable hypothesis that they depend upon the relative use of the two upper limbs.

The only other point to record in this case is that the patient came under observation on account of an attack of urticaria, that this disease affected healthy and nævoid tissue with apparent indifference, and that the appearances wherever produced were similar. I am indebted to my friend Mr. V. A. Corbould for the photographs taken of this case.

MEASUREMENTS.

Upper Extremities.

	Left. Inches.	Right. Inches.
1. *Length.*		
α. Acromion to finger-tips (arms stretched forward)	33.5	32
β. Acromion to olecranon (forearm flexed)	16	15.5
γ. Base of olecranon to finger-tips (forearm flexed; hand and fingers extended)	21	20
2. *Width.*		
α. Between condyles of humerus	3.35	3.1
β. Between styloid processes of ulna and radius	2.5	2.4

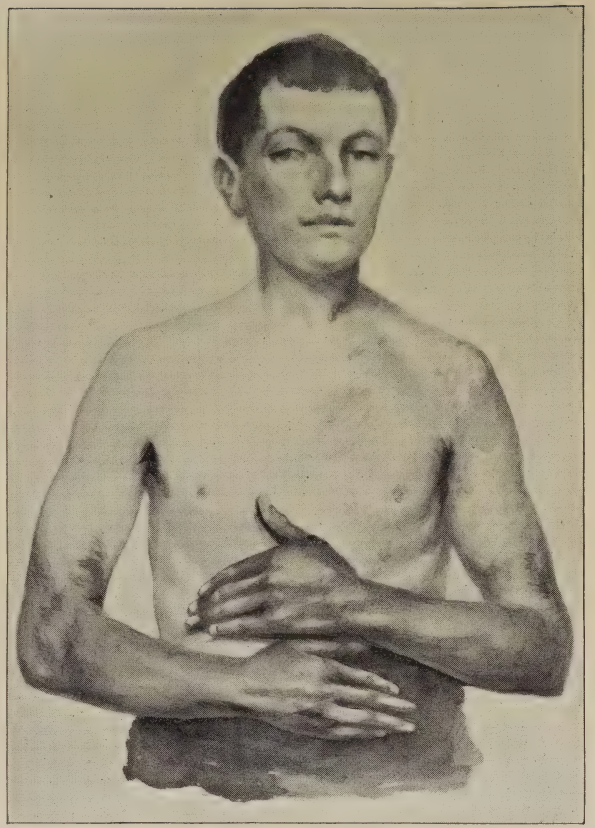

FIG. 1.—Anterior view of a case of nævus, showing the distribution of the growth.

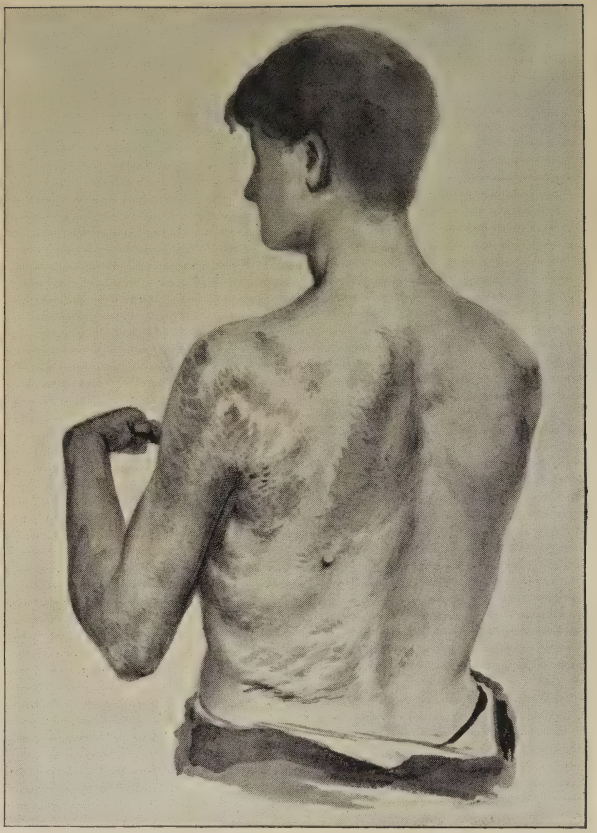

FIG. 2.—Posterior view of the same case.

	Left.	Right.
3. *Circumference.*		
a. Thickest part of arms	11	10.75
β. Thickest part of forearms	11.5	11
γ. Wrists	7.6	7.2
4. *Total bulk* (estimated in number of fluidounces of water displaced).		
a. Hand and forearm	100	84
β. Hand only	23	18
5. *Power of grasp*,—dynamometer.		
(Average of twenty efforts)	115	80
Chest.		
1. *Circumference.*		
Spine to mid-sternum (nipple level)	19	18.5
2. *Diameters.*		
Spine to nipple	8.9	8.8
Antero-posterior (in nipple line)	8.6	8.4

GENERALIZATION OF CANCER OF THE STOMACH.[1]

BY ALLEN J. SMITH, M.D.,

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Aside from the influences produced directly upon the tissues in which it grows, and often dominating the clinical course of the individual case, the capability of generalization of a neoplasm demands the most careful consideration. To such an extent, in reality, is this true that in the minds of a not inconsiderable proportion of the profession the terms "malignancy" and "metastasis" have come to be almost synonymous; the elements of local destructiveness, of location and size of the tumor, being nearly left out of view. With the modern materialistic conceptions as to tumor etiology there can be theoretically no generalization save such as is amenable to mechanical laws; and clinically such laws need in no wise be exceeded in explanation of the spread of malignant growths. While perhaps it may be regarded as of questionable value to call attention to the generalization of so serious a new growth locally as cancer of the stomach, which by no means depends upon its metastatic power for its fatal effects, the modifications of the clinical aspect depending upon the mode of generalization in one or two cases which have occurred within the writer's experience during the past several years have suggested the utility of such an inquiry.

[1] Presented at the State Medical Association of Texas, at Galveston, May 5, 1893.

The possibilities of extension of a tumor process from the primary focus of formation are threefold, (*a*) by direct extension, (*b*) by transferrence by the blood, (*c*) and by transferrence by the lymphatic circulation. It is probable that in exceptional instances a much larger number of tumors than those which are commonly classed as malignant may, in some degree at least, exhibit disastrous tendencies which might fairly be considered under such captions as these; but of all tumor formations only the sarcomata and cancers, as definite groups, can be held as uniformly malignant by transferrence. For purposes of definition and the maintenance of a basis of study it is held by various pathological authorities that there exists a difference in the modes of extension of these two neoplasms, that cancer is infiltrative to a marked degree and that sarcoma is not; that cancer is metastatic by the lymphatic circulation and that sarcoma spreads by the blood. This is, however, but a relative statement, and one is unlikely to find any competent authority who denies a variation from such a rule. It is true that cancers do show a broader zone of infiltration about the peripherally growing growth, but the more rapid vegetative tendency which is met in sarcomata readily explains their narrower zone of infiltration by the quick and pressing extension of the tumor mass towards its invading particles. The question of hæmic or lymphatic extension is dependent upon no specific or intelligent participation of the tumor, but rests solely upon the relations of tumor elements to the blood and lymphatic vessels. The facts that, as a rule, cancers arise in structures in which, in conformity to the functional demands of the part, there are numerous lymphatic channels, that these lymphatic channels are generally more spacious than the blood-capillaries, which they often accommodate, that the epithelial elements of the cancer are larger than the blood-corpuscles, which are often permitted only a somewhat difficult passage through the capillary blood-vessels, must suggest why, as a rule, metastasis of cancer takes place by the lymphatics. The facts that sarcomata arise in connective-tissue structures, in which tissue blood-vessels almost invariably exist and of which their walls are largely composed, that the more metastatic sarcoma elements are relatively nearly the size of the corpuscles which the blood-vessels convey, are sufficient to suggest why these tumors rather than cancers should be generalized by the blood. Conversely, however, when because of propinquity to such, a cancer is enabled to invade a blood-vessel whose lumen will permit the progression of the cancer-cells, cancer as well as sarcoma may show hæmic metastasis; and it is a rare thing to encounter a sarcoma in which no lymphatic invasion may be discovered.

In the observation of the peculiarities of metastasis of a cancer seated primarily in such a structure as the wall of the stomach, where from the thinness of the wall relatively large blood-vessels must of necessity lie close to the infiltrating growth, where the functional necessities of the viscus demand and are accorded a free lymphatic arrangement, and where from mechanical causes approximation of neighboring organs should prevail, in such

instance attention should be paid all three modes of generalization possible to the tumor. Moreover, the possibility of the implantation of the tumor particles, dislodged from the cancerous surface and carried along the intestine, with subsequent formation of secondary nodules in the intestinal wall, should be held in mind.

That in this or that instance there should fail one or more of these methods of transferrence, that occasionally there should be no apparent extension from the primary tumor in the stomach, is to be explained by histological peculiarities of the growth or by circumstances of position. The stomach may be the seat of origin of scirrhus, of medullary or of colloid cancers, or of cylindrical epithelioma. From direct extension from the flat-celled epithelium of the œsophagus, squamous epitheliomata may also be found in the cardiac end of the viscus, but are little likely to give rise to metastasis other than to the lymphatic glands in the immediate vicinity of the œsophagus. Their presence in the stomach being distinctly due to extension and not to primary localization there, these are scarcely relevant to the present subject. Of primary cancers of the stomach, the following may be regarded as the order of malignancy by metastasis:[1] medullary cancer, cylindrical epithelioma, scirrhous cancer, colloid cancer. In a group of sixty cases of cancer of the stomach collected from records of the Philadelphia Pathological Society[2] and from personal records, of twenty-two soft cancers fifteen (68 per cent.) were found to have given rise to metastatic foci; of twenty-eight hard cancers twelve (42.6 per cent.) were productive of secondary tumors; of eight colloid cancers three (37.5 per cent.) gave metastasis; and of two columnar epitheliomata one gave metastasis, while the records fail as to the second upon this point. Of the entire group thirty-one (51.6 per cent.) gave origin to secondary tumor formations. This proportion is somewhat smaller than that which would be deducted from larger groups of cases, Welsh,[3] from an analysis of fifteen hundred and seventy-four cases (collected from Habershon, Lebert, Transactions of New York Pathological Society, and Gussenbauer and Von Winniwater), giving the proportion as 63.4 per cent. Other writers assign as low as 50 per cent.,[4] or as high as 75 per cent.[5]

The probable reason for the ready transferrence of the *medullary cancer* lies in its highly cellular and loose structure, the ease with which the submucous and subserous lymphatic spaces are gained by the cancer elements, and the rapid tendency to degeneration and ulceration, with consequent opening of the blood-vessels to the entrance of the tumor particles. On the other hand, in the *scirrhous* variety epithelial formation is proportionately much lower than in the previous form, and fibrous tissue formation in

[1] Welsh, Pepper's System of Medicine.

[2] Transactions Philadelphia Pathological Society, vols. iii.–xv., exclusive of vol. vi.

[3] Loc. cit.

[4] Fox, Reynolds's System of Medicine.

[5] Ewald, Diseases of the Stomach, Amer. ed., p. 174.

the predominance; the lymph-spaces in the vicinity of the growth are thus diminished from the cicatricial contraction of the newly-formed fibrous tissue, the cancerous alveoli and penetrations are more thoroughly hemmed in and enclosed by the fibrous stroma. For these reasons escape of the cancer-cells from the primary focus is the more difficult. Precisely why *colloid cancer* is less metastatic than either of the above is debatable; but the frequent failure of the usual positions of metastasis (liver, lymphatic glands, and thoracic organs), and the frequence with which one encounters peritoneal penetration and transferrence, suggests strongly the credibility of that view which holds that the enlargement of the epithelial cells by colloid metamorphosis, with the acquirement of a certain degree of viscidity and consequent tendency to agglutination, should be held to account for such peculiarity. While from the insufficient evidence afforded by the group of sixty cases quoted by the writer one is unable to justify the high rate of metastasis accorded the *cylindrical epithelioma*, it is very probable that the assertion of Welsh that it ranks with the soft cancer is justified; and from the highly metastatic nature of similar formations in the ileo-cæcal region it may be fairly assumed that, in spite of this failure of evidence, these growths are not much less metastatic than the medullary carcinoma. Only in the softer, ulcerating growths would one expect to find, and that with little confidence, metastases along the mucous membrane of the intestinal canal, implantations of portions of tumor-tissue carried along the intestine with the contents.

While by far the greatest number of metastatic growths arise from pyloric cancers (twenty out of thirty-one cases), the greater frequence of the pylorus as the seat of the primary tumors (forty-five out of sixty cases) is ample to explain such predominance in gross numbers; and, moreover, an examination of the fifteen cases arising elsewhere in the stomach than at the pyloric region shows that eleven were followed by secondary tumors, indicating a higher malignancy by metastasis for tumors of the cardiac end and the body of the viscus than for those of the pylorus (in proportion of 80 per cent. and 64.5 per cent. respectively). By direct invasion the position of the primary growth must to a certain extent control the extension of the tumor to neighboring parts, the tumors in the pyloric end of the viscus giving rise more frequently to hepatic metastasis and hepatic symptoms, tumors of the smaller curvature being more likely than those of the greater to adhere to and perforate the diaphragm, tumors of the cardiac end being more likely than those of the pyloric to directly invade the spleen; yet aside from these considerations there would seem to be but little influence in the position of the primary growth in the stomach upon the position of the secondary tumors. Thus, out of the twenty-three instances of hepatic metastasis in the group under consideration fourteen arose from the forty-five pyloric tumors, and nine from the fifteen tumors growing elsewhere in the stomach than the pyloric region, thus fairly maintaining in the liver the relative malignancy of the tumors of these two locations. Involvement

of the cœliac glands, of the glands in the gastro-hepatic, gastro-colic, gastro-splenic omentum, and elsewhere, is recorded in twenty-one cases (although it is very probable that because of faulty observation and faulty records this proportion is much too small), thirteen cases of which were furnished from the forty-five pyloric cancers, eight from the tumors in the cardiac end and body of the stomach. Besides the liver and lymphatic glands there are named as positions of secondary tumors in the group under consideration the pancreas, the spleen, the lungs, the pleura, the peritoneum, the skull, abdominal walls, heart, and thoracic duct; and there are recorded instances where the subcutaneous tissue[1] was the seat of multiple secondary tumor formation, as well as the kidneys, suprarenal body, brain, ovaries, and other situations. Welsh[2] names the following as the order of frequence of the various parts of the body as foci of metastatic growth (from the fifteen hundred and seventy-four cases cited above, with addition of statistics of Dittrich, Wrany, Katzenellenbogen, and Lange): lymphatic glands, 35 per cent.; liver, 30.2 per cent.; peritoneum, intestine, and omentum, 22.7 per cent.; pancreas, 7.8 per cent.; pleura and lung, 7.8 per cent.; spleen, 1.7 per cent.; brain and meninges, .6 per cent.; other parts of the body, 5.8 per cent. In the sixty cases, subjects of the present analysis, the lymphatic glands were invaded in 36.6 per cent.; the liver, 33.3 per cent.; the peritoneum, omentum, and intestine, 8.3 per cent.; the pleura and lungs, 8.3 per cent.; pancreas, 13.3 per cent.; spleen, 6.6 per cent.; the heart, 1.6 per cent.; other parts of the body, 3.2 per cent.; this group showing decided concordance with the larger compilation of Welsh.

The paths of metastasis are to be attended to in inquiries into the results of extension. Recalling the usual position of the primary growth as beginning in the mucous membrane in the glandular cells of that structure, it is easily accepted that upon even slight development the tumor finds itself in a loose, easily-invaded tissue,—the submucous connective tissue, rich in lymphatics and blood-vessels. The blood circulation of the wall of the stomach finds its afferent vessels in the gastric, pyloric, and branches of the splenic and hepatic arteries. These ramify through the submucosa largely, sending capillary branches into the mucous membrane about the tubular glands; from these capillaries arise venules, which pursue a straight course back to the submucous connective tissue, where they freely communicate, and terminate in the splenic and portal veins, the former eventually joining the latter before its entrance into the liver. Any tumor particles, therefore, which are borne beyond the gastric structures in the *blood circulation* are almost unavoidably carried into the liver, lodging usually in the terminal portal areas. While, as a rule, the lesser curvature of the stomach is almost entirely drained into the portal vein, occasionally the coronary

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[1] Finlay, Trans. Path. Soc. London, vol. xxxiv.; Keiller, personal communication.

[2] Loc. cit.

vessel fails to communicate with the latter, but empties into the ascending vena cava, thus affording occasional transferrence by blood-channels to the right heart and to the pulmonary capillary area without the intervention of the liver. Carried into the liver, the tumor particles are lodged as emboli, the free anastomotic condition of the vessels of the organ accounting for the rarity of the common results of embolism. The embolism determined, the new tumor focus develops with time, and the presence of the mass—a foreign body in the vessel—excites proliferative changes in the endothelial lining; the entire wall taking part, to a greater or less extent, in the reactive inflammatory process, which results in encapsulation of the intravascular focus, the capsule continuing to form as the growth advances in size. The existence of such intravascular formations is readily proved in auspicious cases if one will carefully remove a small encapsulated mass, detaching the surrounding liver structure and laying open the capsule, when it is sometimes possible to locate the plugged vessel by its lumen patent on the inner aspect of the capsule, or more or less occluded by a blood-clot. The formation of thrombi in the portal vein or its forming branches, as described by Spaeth[1] and others, is in line of testimony favoring such a view. Where hæmic transferrence to the liver obtains, as a rule the organ is plentifully and generally involved by secondary nodes. As long as these nodes are held within their capsules there is little danger of further progression; but in case of the softer and more rapidly-growing varieties this does not long continue, and the tumor particles find their way into the central veins of the lobules, and thence into the hepatic veins. Or by continued growth and infiltration the walls of some branch of the hepatic vein may be penetrated, and thus rapid progression beyond the liver be acquired. As a rule the secondary nodules are not found within the liver lobules, but in the interlobular zone, whence, by direct growth, they penetrate, destroying by pressure *en masse*, or by infiltration, the hepatic tissue of the lobules adjacent, and eventually gaining entrance into the hepatic venules.[2] If a particle of tumor-tissue of some size be dislodged from the primary growth in the stomach it is of course liable to be lodged in the larger branches of the portal vein, near its point of entrance into the liver, near the lower surface of the organ. Such growths are less apt to find a ready encapsulation, and spring into active and perceptible growth more readily than a minute mass of but one or two cells. There is in this case, therefore, greater liability of pressure upon, or invasion of, one or more of the larger biliary ducts, causing obstruction and consequent jaundice, than would ordinarily be likely. Placed in this position, these secondary nodes are liable to give further metastasis through the lymphatic channels of the inferior surface of the liver,—channels which find relatively little communication with those of the convexity. It may therefore be inferred that in

[1] Virchow's Archiv, Bd. xxxv. p. 432.

[2] Shakespeare, Trans. Phila. Path. Soc., vol. vii.

cases of suspected secondary hepatic carcinoma with jaundice the lower surface of the organ will be found invaded by the new growths rather than the convexity, although the infiltration may be general. Obstruction of the larger portal vessels, while rarely if ever complete, is often sufficient to induce enlargement of the superficial abdominal veins as a compensatory phenomenon, and the development of an ascites characterized by a clear serous or bile-stained serous fluid; and symptoms of such a nature should be regarded as suggestive of metastatic deposits rather on the under surface of the organ than on the convexity. The free communication of the lymphatics of the lower surface of the liver with those of the gall-bladder and gall-ducts suggests another reason why involvement of this particular part of the organ should give rise to visible sign.

Following the possibilities of *extension from the liver by the blood-current*, the right heart, after the hepatic veins and ascending vena cava, is the first liable seat for tumor formation. This is almost invariably in the auricular appendages if it occur at all; and after the heart the pulmonary capillary area is likely to restrain the moving tumor-cells, and far more frequently than the heart becomes the seat of metastatic foci.

Escaping from the liver by the lymphatics of that organ, the most frequent seat of metastasis is in the glands of the gastro-hepatic omentum, superficial areas of both superior and inferior parts of the organ draining into these. From the greater portion of the superior surface the lymphatics find their way into the anterior mediastinal glands, and in cases where there is wide-spread hepatic involvement these glands should be examined for secondary deposits. From the right side of the lower surface of the liver the lymphatic stream is directed towards the lumbar or cœliac glands, into which eventually the vessels from the gastro-hepatic omentum also find their way, and as a consequence these structures are frequently the seat of metastatic enlargement. From the left side of the lower surface of the organ the lymphatics in a general way communicate with those of the lesser gastric curvature and of the œsophagus and posterior mediastinum. Inasmuch as this area more frequently than any other in the liver is the seat of direct cancerous invasion from the stomach after adhesions have been formed, these glands are very frequently found involved. The middle area of the lower surface—that including the cystic area—drains into the gastro-hepatic omentum, and thence into the cœliac glands. The lymphatics of the interior of the liver constantly lie in relation with the branches of the portal vein, the bile-ducts, and hepatic artery, and emerge from the organ at the transverse fissure, communicating with the glands of the lesser curvature of the stomach and those of the œsophagus, eventually emptying into the thoracic duct either before or after passing through the diaphragm. On rare occasions the growth may occlude the thoracic duct, and, as may be inferred from what has been pointed out, such a possibility is especially to be feared in case of general involvement of the deeper parts of the liver or of the lower surface of the left lobe. Twice during the past two years

(only once, however, could it be verified by autopsy) has the thoracic duct been occluded within the writer's experience from metastasis from hepatic neoplasm; the *ante-mortem* evidence of its existence depending upon an enormous chylous ascites in each case, the abdominal and mesenteric lymphatics being enlarged and thickened to the size of the little finger, or even larger, in consequence of the obstruction. Failing of lodgement in the thoracic duct, the tumor-cells are borne into the venous stream and find their way into the lungs.

While it is possible that in case of cancer of the stomach and intestine the growth should be most frequently generalized through the medium of the blood-vessels from the ease of entrance of the tumor particles into the blood circulation, and their rapid diffusion in the blood-current, and while probably many instances of glandular involvement are consequent upon secondary tumor growths elsewhere than in the stomach, *dissemination through the lymphatics directly from the primary focus* cannot be doubted. In most instances the lymphatics of the stomach follow the course of the blood-vessels; of necessity, therefore, confusion must result at times in case of glandular involvement about the pylorus and in the gastro-hepatic omentum, whether the lymphatic enlargement proceeded directly from the stomach or mediately by the hepatic route. The group of splenic glands are in connection with the greater number of the lymphatics of the cardiac end of the viscus, and thus afford occasional opportunity for glandular implication in the gastro-splenic omentum. A group of the gastric lymphatics of considerable importance, moreover, pass along the right gastro-epiploic vessels and empty into one of the larger lacteals, and thence into the thoracic duct, thus providing a route for the entrance of tumor-cells into the venous system and into the lungs without involvement of the liver, —a mode of dissemination distinctly possible and noted in one of the group of cases analyzed, although denied by as well known an authority as Walshe.[1] A mode of lymphatic generalization which must be of great importance is that of *serous extension*, best seen in secondary peritoneal carcinosis from cancers of the stomach or pancreas. In a case within the group cited, and in a case of primary cancer of the pancreas with multiple serous metastasis in the Pathological Museum of the University of Pennsylvania, this method of generalization could be excellently demonstrated. The primary tumor in the first instance had extended to the serous surface of the stomach, and minute particles becoming free in the peritoneal cavity were mechanically scattered by the intestinal movements over the endothelial surface of the peritoneum. Small tumors under such circumstances are found attached to the surface of the membrane, each held in a loose fibrous reticulum which apparently has arisen from a localized reactive inflammation about the tumor particles. Usually from gravity the position of these peritoneal growths is low down in the pelvis, although they may

[1] On Cancer, London.

occur anywhere over the serous surface. Regarding the serous sacs, the peritoneal sac in this instance, as parts of the lymphatic structure of the body, as largely dilated lymph-spaces, freely communicating with the neighboring lymph-spaces and channels by the so-called "stomata," it is easily apparent why and how lymphatic involvement as low as the upper inguinal glands, the pelvic glands, the subcutaneous structures of the abdomen, the lumbar glands, may become the seat of secondary tumor formation without the necessity of arterial generalization. It is probable that in this way should be explained almost all instances of organic involvement below the gastric lymphatic level, save in the rather rare cases where the arterial circulation is involved.

Either by *direct invasion through the diaphragm* or by *invasion from secondary nodes in the glands in the anterior or posterior mediastinum*, the parietal pleura may become the seat of further metastatic formations, which at first are to be found in the subserous tissue, but which presently appear upon the pleural surface as described in case of peritoneal carcinosis, small nodes hanging in a loose and delicate fibrous outgrowth from the endothelium of the structure,—in precisely the same manner as the tubercular nodules are found in *perlsucht* in cattle. Implantation from the parietal to the visceral layer of the membrane is apparently without much difficulty, and similar nodes and thickenings are soon found upon the pulmonary surface. The subpleural or superficial lymphatics of the lung afford a ready path for extension, which from circumstances of gravity and priority of implication is usually seen in greater degree in the lower portions of the organs. This process is well seen in a case of cancer of the stomach, the specimens from which have recently been received in the Pathological Museum of the University of Texas. The cancer, medullary in character, had given rise to wide-spread pulmonary involvement, to cardiac, hepatic, and glandular invasion. The pleura in this instance was distinctly thickened in many points, the elements of the thickening consisting of small foci of carcinomatous tissue in the subserous structures, and of connective-tissue formation about them. At many points the microscope revealed imperfections of the serous surface, the penetration of the cancer being distinct. Where the cancerous tissue extends thus over and under the pleura for any great extent it must necessarily exercise a very marked influence to lower the elasticity of the lungs; and one can readily appreciate how when the lung was thus encased, aside from the influence induced by the implication of the blood-vessels and bronchial tubes, marked symptoms depending upon failure of proper air exchange in the lungs and consequent failure of aeration of the blood and upon the increased labor devolving upon the heart muscle (especially of the right side) should have developed in this case. From this cancerous encasement, from this superficial pulmonary lymphatic plexus, the cancer elements could be demonstrated in the case mentioned progressing along the widening perivascular and peribronchial lymphatics towards the root of the organs, thickening the blood-vessel walls, lowering their pliability,

and thus adding another item of obstruction to the right heart, thickening the connective-tissue trabeculæ and perforating into the air-spaces and passages, giving rise to alveolar areas of consolidation both of inflammatory and neoplastic character, and to bronchial irritation and catarrh. It can be easily understood how the pulmonary metastasis in this case should have given rise to violent irritative cough, induced by any attempt at full breathing, by talking or by swallowing; to a thin serous bronchial expectoration; to evidences of cardiac labor and cyanosis; to gradually increasing hebetude, stupor, and coma; and to death by cardiac failure. In the case alluded to, a woman beyond middle life, there had been symptoms of gastric disarrangement and pain for some months prior to her admission to Sealy Hospital. At the time of admission these were very pronounced, there was decided cachexia, and a tumor mass could easily be outlined in the region of the pylorus and pancreas. An exploratory laparotomy was performed by Professor J. E. Thompson, who found the stomach encircled by a large firm cancerous mass, with strong adhesions to the pancreas, left lobe of the liver, and all the adjacent structures. Two weeks after this exploration there began the thoracic symptoms mentioned, only to cease with death, about one month later. The physical signs of the thoracic condition were very indistinct, considering the marked degree of involvement of the lungs, consisting merely of a diminished resonance, decrease of the respiratory murmur, lengthening of the expiratory note over the whole of the lower portions of the chest, and a few fine and scattered râles. The lungs were involved more or less all over the surface, especially in the lower lobes, the cancerous tissue shining white through the pleura in large patches and enclosing the pulmonary tissue as in a box. From this subpleural cancer the growth extended into the interior of the organs along the blood-vessels and bronchial tubes; while near the root of the lungs on both sides were several rounded nodules, as are frequently seen in extension of cancer to the lungs.

In addition to the above mode of pulmonary invasion the possibility of *hæmic metastasis through the liver or from the thoracic duct* must be added, when intravascular implantations growing into rounded nodes, most frequently in the roots of the lungs, take place,—these giving rise to less well-marked phenomena than those described in the above-mentioned case because of the relatively low functional value of the roots of the lungs. From either of these pulmonary invasions, through the bronchial lymphatics, or from penetration from the other glands in the posterior mediastinum along the œsophagus, lymphatic involvement of the supraclavicular glands is possible, and should be sought for as a sign of such extension.

It is uncommon for the generalization to proceed beyond the lungs by the blood; even to reach as far as the lungs is exceptional. The possibility is, however, undeniable that any portion of the system should become implicated by the path of the arterial blood-stream into which the tumor particles may perhaps gain entrance, most probably by direct penetration of a tumor mass into an artery, or less probably by extension from a mass of

pulmonary secondary tumor through the pulmonary venules. By such an explanation it is possible to account for the rare metastasis, mentioned in one or two records, to the head. It is a rule, where metastasis to any part of the head occurs from a tumor occupying a seat in the trunk or extremities, either that the tumor should have general metastasis, or that it should have been so situated as to make possible direct invasion of an arterial vessel going to the head, or have penetrated into the spinal canal and extended along the membranes of the cord.

UMBILICAL HERNIA.

BY CLARENCE KING, M.D.,

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INFANTILE herniæ, occurring at the umbilical opening at or soon after birth, are usually comparatively easy to deal with and a permanent cure readily effected if treatment is instituted early and faithfully continued. Indeed, in many cases an ultimate cure results even if no mechanical or other treatment is undertaken. But when an umbilical hernia is found in an adult the case is different, as a radical cure without surgical interference may be considered as impossible. The method usually recommended by physicians and employed by the laity is only palliative, and consists in bandaging the abdomen snugly or applying a properly-adjusted truss. But this treatment is not entirely satisfactory, as the hernia, if reducible, is seldom retained continuously within the abdomen, and whether reducible or not, the danger of a possible strangulation is always present.

It has been estimated that fully three-fourths of all cases of umbilical hernia occur in infants, being next in frequency to inguinal hernia. In later childhood it is very rare, some authors denying its existence, except as a remaining congenital or infantile defect. The so-called umbilical hernia of the adult is, according to Wood, rarely a true umbilical hernia, but a ventral hernia. In these cases the umbilical ring is seldom found patent, the protrusion of the viscus taking place through one of the natural openings near the umbilicus which give passage to branches of the intercostal vessels and nerves.

Infantile umbilical hernia may be either congenital or acquired, but the line of demarcation between the two forms is not distinct. Many cases of congenital hernia do not appear until the infant makes violent expulsive efforts, as when crying, and all cases of the acquired form had a predisposition in an imperfectly closed abdominal ring. In infants and in childhood

it occurs with equal frequency in the two sexes, but in adults it is found twice as often in females as in males, owing to certain conditions of abdominal distention to which women are especially liable. These conditions include pregnancy, abdominal tumors, obesity, and ascites, and may cause hernia by direct pressure on the abdominal contents or subsequently by causing sudden relaxation of the over-stretched tissues, as occurs after parturition, after operations for tumors or ascites, or after rapid reduction of corpulency by tubercular or other disease.

The size of an umbilical hernia is variable. In the infant it is seldom larger than a walnut, but in the adult it may be as large as a child's head or larger, and contain any organ normally situated in the abdominal or pelvic cavities. Generally it contains omentum or omentum and intestine.

The diagnosis of umbilical hernia is ordinarily not difficult. But in fleshy persons a small hernial tumor may protrude through the abdominal parietes and become so embedded in the thick layer of adipose tissue and fat external to the muscle as to preclude the possibility of detection by sight or touch. In such cases, if the subjective symptoms of obstruction or strangulation are absent, especially if localized pain at the normal situation of an abdominal opening is not present, we may have nothing to direct our attention to hernia. Hence the whole abdomen should receive careful examination in all cases attended by symptoms of acute obstruction, and if a tumor be found at any of the openings it should have due weight in settling the diagnosis. In the infant the diagnosis of hernia rests mainly upon the presence of a tumor, which is increased in size and tension by crying or straining, and which can be made to disappear under gentle pressure. These cases usually appear a few days after birth, in babies who cry a great deal, as a spheroidal tumor about the size of a walnut, distending the umbilical cicatrix or forcing itself forward into the cord. As the cord shrivels and falls off, the cicatrix and peritoneum form the only covering to the tumor, inside of which is a loop of small intestine. Under ordinary conditions the intestine is forced back into the abdominal cavity by the normal contraction of the cicatrix, and the umbilical ring becomes permanently closed. In other cases this does not take place, but the hernia persists till later years, when it forms the so-called "umbilical hernia of childhood."

The reduction of an umbilical hernia in infants is easily accomplished by direct pressure, and in later childhood it presents no serious difficulties unless inflammation with formation of adhesions has occurred. In adult hernia acute attacks of inflammation, with symptoms of strangulation and followed by adhesions of the hernial contents to the sac, form the rule and not the exception. Each one of these attacks is attended with great danger to life, yet the alarming symptoms frequently subside and the patient recovers, thus demonstrating that strangulation, if really present, could not have been complete for any considerable length of time.

The treatment of the adult umbilical hernia is purely operative. I do not believe in the practice of dallying with these cases in the vain hope of

obtaining a cure by means of bandages or trusses, or of making the bearer's misfortune tolerable during the remaining days of his life, unless it is plainly evident he has not long to live or that an operation would be likely to prove fatal. A surgeon is seldom called by these patients until the advent of one of these attacks of acute obstruction of the bowels. If, upon inquiry, we find a history of previous attacks and if the symptoms are at all alarming, I would advise immediate operation unless the patient be *in articulo mortis* or there exist other good and sufficient reasons for delay. But if, on the other hand, the present is the first attack and the symptoms of obstruction are not pronounced, it may be best to postpone operation until the acute symptoms have subsided, retaining, of course, constant observation of the case.

The *technique* of the operation is simple and may be obtained from any good text-book on surgery. After cleansing the abdominal surface thoroughly an incision is made down to the sac, which is taken up with dressing forceps and a small opening made, through which a grooved director or a finger is inserted, and the incision extended as far as may seem necessary, always keeping in mind the comparatively thin covering of these herniæ, except in very fleshy people, in whom the difficulties of the operation are much increased. If necessary to effect reduction the ring may be nicked, always cutting towards the pubes, after which, if there be no adhesions, reduction may be accomplished by gentle taxis. When adhesions are present, they must be separated and all bleeding vessels tied with catgut. Ordinarily it is best not to amputate the omentum, should it be present, but to return it to the abdominal cavity. The thickened peritoneal walls of the sac are then scarified at the abdominal ring to provoke a mild adhesive inflammation (sometimes the minute wounds produced by the needle in suturing are sufficient), brought carefully together by catgut sutures, and the superabundant tissue cut away. The margins of the ring are then freshened and brought together by wire or silk. The skin and superficial tissues are then sewed with catgut or silk and an absorbent dressing applied. Professor Wyeth advises in very corpulent persons that the external wound be not closed, but packed with antiseptic gauze and left to granulate. He claims by this means the resulting cicatrix is firmer while we avoid the great danger of the sutures cutting out, as they are liable to do when introduced in tissues loaded with fat; besides, thorough drainage is secured.

The following case of umbilical hernia in the adult is a typical case, although suppuration occurred after operation, and recovery was somewhat tardy but finally complete:

L. P., aged thirty-three, female, corpulent, married at seventeen, mother of four children, the youngest nine years old, no abortions. About a year after birth of last child had a small hernia appear at umbilicus, which steadily grew larger until it finally reached the size of a child's head. Had several attacks of severe pain in tumor, accompanied by vomiting and other symptoms of obstruction, which lasted as a rule three or four days. February 16, 1890, soon after coming under my observation at the Cattaraugus

County Hospital, she had one of these attacks, and I decided on immediate operation. Found surface of tumor rough and nodular, dusky in color, tense, and very tender to touch. Patient pale, unable to stand or extend the limbs, pulse weak, rapid, and compressible, second sound of heart inaudible. Gave ten grains of bromide of potassium and half an ounce of whiskey ten minutes before I began the administration of anæsthetic. Used Squibb's ether, administered with a Sims inhaler. Cut down on sac and made a small opening, through which a stream of pinkish serum spurted for some distance, showing intra-hernial pressure. Enlarged opening to extent of three inches, and found omentum and intestine, the latter dark in color and both adherent in several places. The adhesions were torn loose, the constriction at the abdominal ring cut, and the intestine wrapped in hot towels. After it became evident that the circulation was re-established in the intestinal walls the gut was returned to the abdominal cavity, but on account of persistent oozing of blood from the many abraded places on the omentum which had been the situations of adhesions, it was thought best to tie the omentum at the ring and cut away the external portion. There was a strong adhesion between the stump of the omentum and the peritoneum just inside of the abdominal ring, which was left undisturbed and the stump turned inside so as to lie directly behind the ring, thus forming an additional barrier to the descent of the hernia. The sac was then sewed with continuous catgut sutures and trimmed, the ring closed with silk sutures and the skin with catgut. A dressing of absorbent cotton was applied. Patient did well for about a week, with a temperature below 100° ; suffered no pain and had normal movements from the bowels. At the end of this time the temperature began to rise, and on the ninth day reached 102$\frac{2}{5}$°, with some pain at the umbilicus and chilly sensations. The dressings were removed, and a small sinus was found near the lower end of the external wound, through which pus appeared. This was enlarged and as much as two ounces of pus taken out, the cavity washed and a drainage-tube introduced. The temperature fell to 99° within a few hours, at about which point it remained for a week, and gradually went down to normal as suppuration subsided. Applied broad truss well protected with thick layer of cotton, the latter used for the double purpose of absorbing the scanty discharge, which persisted for two or three months, and of protecting the cicatrix from undue pressure from the central cone with which these trusses are made. Patient resumed work in about six weeks, and soon after left for a neighboring city, where I lost track of her for about a year, when she was returned to our institution. Had had no return of the hernia, but still wore the truss. At present she is able to do the hardest work about the kitchen, run up and down stairs, make beds, and perform any duties required of her. At times, however, she has attacks of sharp pain in her left side, but never at the umbilicus, which require full doses of morphia to allay. As these are sometimes accompanied by vomiting, I have conjectured much as to their probable cause.

THE OPPORTUNITIES OFFERED BY PRAGUE, HEIDELBERG, AND DUBLIN TO THE AMERICAN MEDICAL STUDENT.

BY A. O. J. KELLY, M.D.,

Philadelphia.

A REGULAR meeting of the Anglo-American Vienna Medical Association was held at the Riedhof, Friday evening, December 23, Dr. Walter L. Bierring, of Davenport, Iowa, the President, in the chair. The minutes of the previous meeting were read by the Secretary, Dr. Henry Kugeler, of San Francisco, and approved by the society. The business proper of the meeting was then proceeded with. This consisted of a "Discussion of the Relative Merits of Various Smaller Universities, and of the Advantages one might there enjoy."

It was intended to compare Prague and Dublin as centres of obstetric teachings. Dr. Austin O'Malley, of Washington, D. C., was called upon to relate his experiences at the former place. In substance he said that the obstetric work in Prague is to be done in what is known as the Gebürt Anstalt, Boehmische Abtheilung. Besides a department for midwives, the hospital has two sides, so called,—the Bohemian and the German,—the former of which only is accessible. And having once become an intern there, one's personal popularity and success depend in no small measure upon the vehemence with which he decries everything German; the stronger his condemnations, the more is he thought of. During the first six months of 1892 there were six hundred and twenty-one deliveries in the Bohemian side alone. All abnormal cases are in the hands of the assistants; the primiparæ are delivered by the interns; the multiparæ by the Bohemian students and midwives. The interns, too, may conduct the delivery of these latter cases, if they so desire. During the six weeks the doctor was there he delivered several multiparæ and fifteen primiparæ. Had he not been otherwise engaged, he might have had several more of the latter. Of course, one is called to everything abnormal; and in this connection, a small fee to the attendant will not go amiss. The patients are always placed on their back for delivery. During the puerperium one has opportunities for noting the condition of the patient from day to day, until her discharge from the hospital. The doctor thought that their method of repairing lacerated perineums might be improved upon, as the rent is but very superficially approximated. They have the most sensible way of dressing the new-born infant; but their success with their children is not very great. One has opportunities for witnessing all gynæcological operations, which are done by Professor Pawlik. During the six weeks mentioned

the doctor saw eleven cœliotomies, three or four hysterectomies, a few colporrhaphies and the like. Here one can see the various stages of the operations much better than anywhere else; there are so few present, all are close to the patient. The manner of catheterizing the ureters is very carefully explained and taught by Professor Pawlik, who is justly celebrated for his dexterity in doing this operation, which is one of his own devising. Personally the doctor did many finger curettements. But these were purely favors. One might not be permitted to do such operations. Asepsis and antisepsis are carefully practised; the principal antiseptics employed being thymol, lysol, and mercuric bichloride. There are accommodations for four interns only. And in order to be sure of a place one should, before he goes there, write to Professor Pawlik, and later to the secretary or porter for the rooms. The expenses are very small; board is cheaper than elsewhere. The doctor was unprepared to state whether or not it would repay a man to go to Prague. He certainly need remain no longer than two months; one might be sufficient. If a man knew little of his subject, he might with advantage go there; but he thought a visit there would hardly repay one who was well informed on obstetrics.

Dr. A. O. J. Kelly, of Philadelphia, was then asked to give the society the benefit of his experience at Dublin. He said, "What I shall say of the Rotunda Hospital are mostly words of commendation. A student, having been accepted by the master of the hospital as a pupil of the institution, applies to the keeper of the list for assignment to days on which he shall be on duty. Each pupil of the hospital is on duty from 9 A.M. until 9 P.M., or from 9 P.M. until 9 A.M., four days of the week, two days intern duty, two days extern duty; the days on which he is on intern duty precede those on which he is on extern duty. The student selects his own days; but he may not have an extern case until he has had an intern one. Those on duty during the night are mostly undergraduates,—students of Trinity College or elsewhere, who take this way of obtaining their practical obstetrics previous to qualification; they do not live in the hospital. All others are on duty during the day, and have residence, if they desire it, in the hospital. The cases, both intern and extern, are allotted in turn to those students whose names appear on the list as being on duty for the day. Any one not present when called misses his turn. At night, when a call comes, if there are no extern men present, the interns conduct the case. During those days on which a student is on duty he may see all the cases of labor that are delivered in the wards, and has opportunities of becoming proficient in methods of obstetric diagnosis, by means of abdominal palpation of cases in the wards, and vaginal examinations of those cases in labor. To all abnormal cases, at any time whatsoever, all the students are called. At about nine-thirty every morning the master of the hospital, Dr. W. J. Smyly, goes through the wards. The pupils accompany him. At intervals he delivers a lecture, illustrated by some interesting case that may be in the ward, on placenta prævia, post-partum hemorrhage, deformed

pelvis, and the like. They then repair to the surgery, as the gynæcological department is called. Here various cases are presented: some for diagnosis, others for medicinal treatment, others for operations. The students, of course, see all the operations; and the other cases are examined by them in turn. During 1892 the number of intern obstetric cases was twelve hundred and nineteen; extern obstetric cases about three thousand. The number of intern gynæcological cases number five hundred a year; while those treated in the out-patient department amount to ten thousand yearly. I was there a month and saw thirty-one obstetric cases, about one-third of which were personal conductions. Being otherwise engaged I missed seeing some. In a month one should see between forty and fifty cases. But a month is hardly long enough to remain. Many stay three months and see almost a hundred and fifty cases; while others prolong their stay to six months and become candidates for the degree of L.M. (licentiate of midwifery). There are accommodations in the hospital for sixteen students. But at times there are more,—others living outside. Especially is this so during the summer months, when the English and Scotch undergraduates go there for their obstetrics, just previous to the commencement of the fall terms at their medical schools. This is a poor time to go; the best time being during the winter and spring. The fee is six guineas for one month; thirty guineas for six months. In addition to what I have mentioned there is a thoroughly practical course on gynæcology given by Assistant Master Dr. Glenn, and a quiz course on obstetrics by Assistant Master Dr. Tweedy."

Dr. J. Page Massie, of Lynchburg, Va., being then called upon, spoke of the advantages offered at Heidelberg. In the course of his statements the doctor said that that branch of medical science for which a man might go to Heidelberg in preference to other places is pathology, both microscopic and gross,—the former of which is excellent, the latter fair,—very good for a small town. In microscopic pathology there are two courses, the better of which is by Professor Arnold, in whose laboratory one may work from 7 A.M. until 7 P.M. The cost of this is nothing. But to take the laboratory course one must matriculate for the professor's lectures on microscopic and gross pathology; this costs but twenty marks per semester. Daily in the laboratory each student is given two preparations, of which he may cut as many sections as he chooses. It is, however, possible for a man doing nothing but pathology, upon application, to obtain more than the two specimens daily. The preparations are given hardened on a block; the student must cut and mount them himself. Besides this, one may take as many specimens of gross pathology as he chooses, and himself perform the entire process of preparing them for microscopic examination,—that is, harden, cut, stain, and mount them. Professor Arnold teaches the method, and every day carefully explains the specimens given. The second course on microscopic pathology is by Dr. Ernst, Professor Arnold's first assistant. The class meets twice a week, two hours each day. The preparations are given cut and stained; one has simply to mount them. Dr. Ernst demon-

strates them by drawings on the blackboard, and then explains them to each one individually. In gross pathology there are from one to six subjects a day, with an average of three or four. Everything is well demonstrated, and one has opportunities of making post-mortem examinations, to the number of three or four a month. By Professor Leber and his first assistant, Dr. Waggerman, there is given a course on the pathology of the eye, which is said to be the best in the world. The work consumes two hours a day, during which time there are given two specimens ready for mounting. These are then very thoroughly explained. The course costs forty marks a month. Dr. Ernst gives also a course on bacteriology which is very good. One works in the laboratory the entire day. The material is enormous; personal attention fair. The course is given twice a year,—during March, and again during August, and costs forty marks; but one must furnish his own glass apparatus, costing from ten to seventeen marks. For a place the size of Heidelberg, Professor Czerny's clinic is splendid. One doing other work at the university may attend the clinics free, and may also, with the professor, visit the wards of the hospital, where he has two hundred beds. The lectures on diseases of the nervous system once a week—Wednesdays—by Professor Erb are also fine, particularly his remarks on diagnosis, on which he lays particular stress. On other days he lectures on internal medicine. In other branches of medicine a person can do much better elsewhere than he can at Heidelberg. Heidelberg is more of a place for a student than for a post-graduate, and in case of any distinction, the student has the preference. It is a fine place to prepare for a degree, for before one finishes he has opportunities of becoming assistant under nearly all the professors, doing this work of course during the vacations, when there are no lectures.

Dr. Holland, of Chicago, then spoke a few words in praise of the bacteriology course at Heidelberg; and Dr. Kugeler, the Secretary, in the same strain, mentioning also the very pleasant surroundings of Heidelberg.

The thanks of the society having been tendered the gentlemen mentioned, and some routine business having been transacted, the meeting was adjourned.

THE VALUE OF AERO-TONIC TREATMENT IN OUR CURED NOSE, THROAT, AND CHEST PATIENTS: WITH A FEW REMARKS ON SOME SUITABLE WINTER RESORTS.

(Concluded from the August number.)

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ENOUGH has been said regarding the tonic effect of fresh air. Let us now enter upon the study of "the winter climatic resorts" of the three continents. In this I intend pointing out the advantages and disadvantages of each of these climatic localities.

For the benefit of those physicians who cannot by personal visitation and examination acquire the knowledge for themselves, I am induced to write and teach thereby of the winter health-resorts of the three continents, especially those to be recommended as an after-cure for throat, nose, and chest affections. My object is simply to disseminate what I suppose to be facts, acquired by years of study and some travel, and by an earnest effort to learn from those I have met who have studied this subject ardently and with much personal experience, and thus to point out dangers and obstacles which physicians should know, and which many are obliged to learn by an expensive and regretful experience. We know that no one climate is adapted to all cases and individuals, and that no resort should be chosen by a patient until the exact character and condition of the disease has been ascertained and a competent climatologist consulted. These are facts which will be dilated on in the following winter climatic studies.

THE NILE.

The Nile is the region where in our school-days history began in the land of the Pyramids. It is a stereotyped expression with regard to all climatic resorts that "the season is exceptional," but that January, February, and March for several years past have been shown to be colder and more windy than those months usually are on the Nile. Unfortunate as the season may have been for the generality of invalids, from an examination into its meteorological studies it is believed that, so far as climate alone is concerned, the average winter weather on the Nile, from November to April, is as good as any to be found for a majority of those who need a mild, dry atmosphere, free from malaria,—an element which must be carefully considered by all in search of warm winters. As the Nile valley is seldom more than ten miles wide between the deserts,—and its average is much

less,—there must be a purity of atmosphere therein that is exceptional. It is cool and bracing, and necessarily very dry, too dry, in fact, for some invalids. On the Nile above Cairo, but not including Cairo, fires are unnecessary during the winter days. Cotton, tobacco, beans, and other plants very sensitive to cold continue to grow and blossom in this season, and yet the heat is neither oppressive nor debilitating, and woollen clothing can be worn nearly all the time. The nights, however, are cool, and frequently cold, and the variations from mid-day to midnight, or rather to the early morning hours, when the temperature is lowest, are such as to require an amount of care and caution on the part of invalids not always easy nor likely to be exercised. During the winter several years ago the thermometer is shown to have indicated a temperature below 30° Fahr. several times, which is there very exceptional; but one is liable to encounter a temperature of from 40° to 45° at night any winter. If on a steamer or dahabeeyah, there is no reliable protection against such changes except clothing and bedding, as there might be could one be protected by a close-built house or by fires. As it is, the doors and windows are never tight, and the invalid traveller, therefore, is never safe unless he can be sure of waking at every change to add the needed protection. As there are only two hotels above Cairo where one may stay overnight, and these at Luxor, and not very comfortable either, the difficulty named seems a serious one for the very delicate to guard against. When colds occur, as they do frequently, there is no doctor to be had above Cairo excepting at Luxor, and no medicaments to be obtained save those you carry with you. As there are no rains during the winter, the soil is kept very dry, and the constant trampling upon it on the paths by men and animals keeps it so dusty at all times that it is difficult to obtain agreeable exercise on shore without inhaling the fine sand and dust from underfoot. This discomfort is increased by the sand-storms that one can never count on escaping, and which sometimes prevail from one to two days. All winds heavy enough to move the sand so cloud the air with dust that it is sure to produce discomfort, even if not followed by positive injury to delicate throats and lungs. The dust raised by donkeys and the unavoidable dust of the dirty villages seriously detract from the diversion of the very interesting sight-seeing which invalids rely upon for benefit. Add to these objections the expense of going to the Nile and the cost of living there, which cannot be estimated at less than ten dollars a day for each person on a dahabeeyah (and there is no other present means of living on the Nile comfortable for invalids), add also the distance to Egypt and the inconvenience of making the journey. Invalids and their advisers should consider long and carefully before deciding that the Nile is the best place in winter for those having very delicate throats and lungs, including all who are threatened with phthisis. For those without settled disease, who have been overworked and need rest; those who are recovering from an enfeebled condition and free from pulmonary complaint; those who need a change, with rest from the excitement of their

ordinary lives, I know of no trip more likely to prove restorative and compensating than one on the Nile.

Of Cairo,[1] although generally a healthy city in winter, and a place very attractive to visit, I need only mention that the resident physicians do not recommend it for phthisical patients or for persons with pulmonary tendencies. The air is too damp, fogs are not infrequent, and the inhalation of fine street dust is almost unavoidable. The weather is often too cold to be without fires, for which no good provision exists. The new Grand Hotel only has grates for open fires.

Most invalids wintering in Egypt desire to leave it in April, and many are tempted to visit Athens or Constantinople. This is a serious error, as both climates are unfit to visit before May. Sicily and Corfu, or the Riviera of France, are much safer. Corfu is a beautiful island, and one can be comfortable there.

SOUTHERN FRANCE, THE RIVIERA, AND ITALY.

The great winter resorts of Europe for those in search of mild weather are to be found in the south of France and in Italy, including Sicily. The principal places where good hotels, cosey villas, and the comforts of life are to be found are Biarritz and Pau (the first on the sea-coast, the second in the Pyrenees), Hyères, Cannes, Nice, and Mentone, in France, and San Remo, in Italy, all on the Mediterranean, between Marseilles and Genoa. At these places good, comfortable quarters, good society, good shops, and able physicians may be found, with many more diversions and pleasures than can be had at the winter resorts in our own country. To contrast them in a single particular with the Nile, fires of wood and pine cones in open fireplaces can be secured in bedrooms at a low cost. For persons in health, and for those in delicate health, without any settled lung- or throat-trouble, for such as desire or require an open-air life in a mild winter climate, they all offer attractions and comforts greater as a whole than can be found elsewhere; but, like all climatic resorts, they have their objectionable features when presented for the abode of consumptives, which should neither be unknown nor forgotten. For sea-coast places Biarritz and Arcachon (the latter not far from Bordeaux) offer a mild winter climate, with a soft sea-air, but are subject more or less to winds and fogs, which shows some of its unfavorable climatic features for consumptives. But for those only delicate or slightly diseased, or those who require an aero-tonic effect,—as, for instance, an artist who has need of much rest from overuse of the voice or after having undergone an operative treatment of the air-passages,—a mild but moist air; for such Biarritz is an exceptionally fine sea-side resort.

At Pau the winters are apt to be wet, but when the season happens to be a dry one it is a delightful winter residence, and being so near the

[1] January, 1891. Recent charts give the statements that winter rains on the Nile are now common, that the climate has greatly changed, and seriously affected the health of Cairo. I give the statement as made and found.

Pyrenees, has a fine, bracing air, and freedom from debilitating heat, so essential for some constitutions. The liability to rain, however, and cold changes are important considerations for those who may be easily affected by them.

In the south of France, the favorite resort for English and Americans, we are mainly indebted to the English for the introduction of the many comforts now to be found there. Hyères, Cannes, Nice, and Mentone in France, and San Remo in Italy, each has its advocates and advantages, and as they are all easily reached by railway from Paris and Marseilles, and are not far apart, invalids have the opportunity to make a choice. Hyères has been improved in its drainage so as probably to remove well-founded objections that were formerly urged against it, and therefore has some advantages over each of the other places on the Riviera. Situated on a side-hill, it has a delightful southern exposure, with a pleasant plain below. It is a few miles back from the sea, and sheltered from the ocean blasts by the intervening hills of the Isles d'Hyères. Its location is good, its roads excellent, the drives pleasant, and the many recent improvements and increased building indicate that it is likely to become more prominent in the future as a winter and health resort. Cannes and Nice are too generally known to require much comment. Both are very attractive resorts.

It is here important to call to mind the fact that all Mediterranean ports are located on bays into which the sewage empties, without any active river current or tide to carry it far away. Until within a few years, since San Remo has become a favorite and rival resort, Mentone was regarded by English physicians as the best place on the coast for consumption and throat affections, on account of its being the best sheltered. Whether it is not too much sheltered is a question which demands consideration. All of these places offer a great many inducements to travellers in search of health, —ease of access, good hotels, boarding-houses and villas, good English-speaking physicians (in fact, English is spoken almost everywhere), and a variety of diversions. But in all these places some invalids will find discomforts and causes for apprehension which the well and full-blooded may not encounter. The seasons are quite variable, some very rainy, and all are subject to high winds and sudden and cold changes, and require an amount of clothing seemingly out of proportion to the temperature as indicated by the thermometer, and the same remark is applicable to Egypt and Algiers. To the visitor with a good circulation, going to Nice for the first time, it looks almost ridiculous to see prudent people walking on the promenade during what appears to him charming weather with overcoats and sun-umbrellas; but if he stay long enough in the place he will discover that the supposed absurdity is the result of good sense. I do not believe that there is any strong probability of recovery from a fixed disease of the lungs in any of the resorts in the south of France, but I do believe that those who secure sunny rooms, and have a fire whenever prudence demands it, who are well located as to their surroundings, and who use proper care

both as to dress and exposure, may not only increase their comfort greatly by passing their winters on the Riviera, but may prolong their lives, and that those who are only delicate from previous sickness or from inherited tendencies may prevent disease by living there, with proper care and prudence, from December to April.

I will say for San Remo and La Spezia that there are no places in Italy where consumptives, throat and other patients can stay with greater comfort and safety, and therefore consider it unnecessary to name other localities in that country which might compare very favorably as regards climate alone, because I know of none such where the invalid can secure an open-air life with such comforts and surroundings as are absolutely essential for contentment and improvement.

However attractive Florence and Rome may be as winter residences for healthy people, it is not wise to send patients there for aero-tonic effects. In fact, no well-populated places are good for the therapeutical effects sought for. As for the city of Naples and the bay of Naples, they have great natural advantages of climate, but there are too many objections. Want of more intimate knowledge prevents me saying anything more of Sicily than to express my belief that its climate ought to be excellent, but to send invalids into Catania—one of the best locations—subjects them to objections of a kind which could not prove congenial to the people of our country, without mentioning any possible risk from the earthquakes and brigands. Malta is not a good place for phthisical and heart patients.

ALGIERS.

The only remaining place known to me on the Mediterranean that deserves to be considered is the city of Algiers, including its suburb of Mustapha Supérieur. The climate of Algiers, like that of all the other places I have named, is variable, but I regard it as fully equal to and better than any on the north side of the Mediterranean. I should not recommend the city for a prolonged stay. On the hill-side, from two to three miles distant, overlooking the sea, and with a beautiful panorama spread before it, is the suburb of Mustapha Supérieur. The climate is less subject to extreme variations of heat and cold than that of most other resorts; the autumnal and winter rains are less objectionable than those of the Riviera and Pau; yet the air is not as dry as that of the Nile. I am disposed to believe that Mustapha Supérieur, of all the Mediterranean resorts, deserves to be ranked next to the Nile for climate.

SPAIN.

Spain has some excellent resorts for invalids. Malaga has as good a winter climate as any in Europe, but, unfortunately, it has not another attraction; there is no spot between it and Barcelona where one can find a winter residence. To one speaking Spanish a winter residence here might be made pleasant, and it has the advantage of being not very distant from Pau and the resorts on the Riviera.

SWITZERLAND AND THE TYROL.

We now come to the consideration of a few Swiss places which have recently grown in favor as winter resorts. If the theory which some climatologists entertain be correct, that many consumptives do better and are more likely to recover in a cold dry climate, then for those thus advised who can go abroad, the experiments now being tried in Switzerland will prove very interesting. To them I can recommend Swiss air for its tonic effects.

The success of Davos Platz as a winter sanitary resort has resulted in the opening of several other winter resorts in Switzerland. Meran, in the Tyrol, is an old and well-known winter resort, and although very pleasant in the spring and autumn, I doubt if well-informed physicians regard it as a desirable location in winter for lung and throat troubles.

If climate were the only important consideration for phthisical patients, then crossing the ocean in quest of health would be a doubtful expedient.

According to existing theories among specialists in chest and throat diseases, three kinds of climate are required for such patients suffering from lung and throat diseases, according to their special condition and constitution,—viz., a cold and dry climate, a warm and dry climate, and a moist and warm climate. What I have to say about climatic resorts in the United States and in close proximity will show, if correct, that we have all these conditions in a degree quite equal to, if not excelling, those to be found in Europe.

THE UNITED STATES.

I will now consider the climatic resorts of the United States. For a cold and dry climate invalids now seek Colorado, Minnesota, Northern Michigan or Lake Superior, the Adirondacks, and Lakewood, New Jersey. All the resorts in Colorado known to me where one can obtain the comforts of life essential to improvement are at an altitude of several thousand feet, and this fact or some other unexplained cause seems to create a necessity requiring those who improve or recover there to continue their residence in order to maintain their improvement. I cannot claim that this theory has been proven, but it is sufficiently believed to demand consideration. So many invalids have been sent to Colorado only to die, being beyond the possibility of recovery anywhere, that I think additional knowledge from careful observation of results is essential to the formation of a satisfactory opinion in regard to the effects upon those seriously diseased. For those slightly diseased, or with a weakness arising from hereditary tendency, Colorado seemingly ought to be one of the best resorts. It has one marked advantage in having its mountain resorts and high altitudes for summer within a few hours from Denver. The air of Colorado is exceptionally fine and bracing both in summer and winter, and very comfortable places to reside may be found for both seasons. For such as have chronic throat or lung disease life may be prolonged and made comfortable if the

case be not already too serious for such a result to be attained anywhere; but beyond that Colorado does not, so far as I can learn, offer reasonable hope. But for our cured cases of nose and throat and lung disease, a few weeks of its climate are worth the trouble and money spent.

Minnesota has a very dry but very cold winter climate; the days are exceptionally bright and clear all the winter, and in St. Paul and Minneapolis, where comforts and luxuries abound, invalids needing a cold and dry air may get along without much loss until the winter begins to break, when the season proves very trying, and it is a long and tedious journey to reach any genial or safe climate for March and April. The same remarks will apply to Marquette and other places in Northern Michigan and Lake Superior, only that these places are without the comforts of Minnesota.

The Adirondack region from June to November I regard as one of the most desirable health-resorts to be found; in fact, I know of none in the country I would sooner seek for health-giving properties.

Lakewood, New Jersey, is located on very sandy soil, surrounded by pine woods, and has secured to it a comparatively dry air because of its having a soil so porous that both rain and snow disappear quickly, leaving a dry surface and no damp exhalations. This fact enables its residents to walk and drive almost daily in winter, when they are shut up in fact at any other point equally near New York or Philadelphia. Added to this important fact, Lakewood has the advantage of extremely comfortable family hotels, like the "Lakewood" and others. Exemption from the bad air of city homes introduced through under-cellars and heated in iron furnaces, the ability to ride and walk in a drier and purer air, and pleasant company make Lakewood, without the aid of drugs, a sort of panacea for all forms of colds. This resort can also be employed for our cured cases.

However great the advantages of California may be for those residing on the Pacific slope, invalids whose homes are east of the Missouri River should seriously have it considered whether the inducements are great enough to compensate for its disadvantages. In summer the climate of California is hot and dry away from San Francisco or other very windy and variable locations as they are found along the coast. In winter it is very rainy and damp, as the rains all fall between October and May, which is there the season of verdure,—the period when their grass grows. For those who are simply delicate, or inherit a tendency to phthisis, I know of no country where I should regard the chances better for fair health and a prolongation of life than Southern California.

The climate of Los Angeles and its vicinity and that of Santa Barbara offer attractions and inducements for invalids which should not be underrated, but which I fear have been too highly praised. The variations at night, and from sun to shade, are trying. For invalids not seriously diseased —for those who are simply delicate and require an aero-tonic treatment, or have an hereditary tendency to disease—Santa Barbara has many advantages, but its location in a valley, between the coast and a range of hills extending

to the sea, makes it very windy and causes frequent dust-storms injurious to lung affections. It is also subject to fogs.

That portion of California known as San Diego offers more advantages and fewer objections for permanent residence than most climatic resorts. However, for those who are seriously affected, and who go from the East to the West in the hope of permanent cure, there is often great disappointment.

North Carolina, South Carolina, Georgia, and Florida all have resorts which deserve consideration.

Asheville, North Carolina, as far as location and beauty of scenery is concerned, is unsurpassed by any place in our country save, perhaps, by Estes Park, in Colorado. Its reputation for the health-giving properties of its air and its elevated position give it a high rank as a health-resort.

For the class of patients who need nature's tonic it is exceptionally well provided for. As a stopping-place for invalids who winter in a milder climate, from the middle of April to December it is deserving of attention. From December to April 15 I consider the climate too cold and too variable for such as require an open-air life.

Aiken, South Carolina, has acquired a prominence for several seasons. It is located on a high elevation of fine and sandy land, with a soil so porous that there is almost a total absence of soil dampness. It is naturally healthy, has good water and dry air,—too dry at times for some invalids. Its surroundings, as a whole, are favorable to consumptives and chronic throat ailments for eight months in the year. From April to December Aiken is subject, by reason of its elevation, to high winds, while the climate is somewhat variable, and changes of temperature sudden and great. As a spring and autumnal resort it is one of the best in our country.

The Sand Hills near Georgia compare favorably with Aiken.

Thomasville, in Thomas County, Georgia, is located in the pine belt and accessible by railroad. It is at present one of the most desirable localities to be found for a warm and dry air. It is comparatively free from high winds in winter, and also from the humidity of many portions of the peninsula of Florida. As a resort from December to April, inclusive, there are very few spots on the mainland offering better climatic conditions than Thomasville, in Georgia, and Tallahassee and Quincy, in Florida.

Florida has a winter climate that is very delightful, but invalids need to be well informed where to go. The lower St. John's (as the river runs north, I mean the northern, and below Palatka) is too windy and too damp to be desirable for pulmonary troubles. The greater part of the peninsula is very flat and low, swamps being abundant and the atmosphere very humid. Care is needed to avoid malarial localities, and also to secure good drinking-water; filtered rain-water is the safest and best, for the danger from poisonous water is often as great as that from poisonous air. Consumptives are warned not to drink water from the artesian wells in Florida, which, although safe from malarial effects, may be injurious to them, as they generally contain much sulphur.

At Winter Park, a few miles from Sanford, on the railroad to Tampa, will be found an excellent haunt.

Climatic changes necessitate changes of location, and hence the best from November to March are not likely to be the most desirable for March and April.

There are other localities in the Southern States which may be as good as those named, but as none, to my knowledge, afford comfortable accommodations or any diversion to relieve the monotony of life, I will pass them by.

NASSAU.

For such as require a moist and warm climate I would suggest the island of Nassau.

For those who can bear its moderate heat Nassau offers a climate unsurpassed; its great merit being that it is exceptionally equable and free from violent changes. But for an occasional "norther"—and they are neither frequent nor severe—the careless and imprudent in the matter of dress would have nothing to fear from the changes of weather. The proximity of Nassau to the Gulf Stream gives the air a delightful softness and dryness, which is particularly grateful to the lungs, providing the climate does not prove enervating. The heat is not greater than much of our own weather from June to September, inclusive.

Thus in brief I have touched upon the better-known winter resorts in the Old and New World, and I trust I have been explicit and fair enough in my description of both advantages and disadvantages of each one to enable the thoughtful physician to select a proper resort for any of his patients who may stand in need of one.

118 East Sixteenth Street, New York City.

NOTE ON PROTECTION AGAINST SUITS FOR MALPRACTICE IN CERTAIN CASES IN SURGERY.

BY G. FRANK LYDSTON, M.D.,

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Certain disagreeable experiences with disgruntled patients and blackmailing lawyers have suggested to me a simple plan by which malpractice suits in certain fractures and dislocations may often be averted, or, if not prevented, may be successfully fought in the courts. The plan may have been mentioned by others, but if so I do not recollect it. My method is, in brief, to be able to show, in a manner at once practical and convincing,

that the injured part was placed in proper position and retained by proper appliances for the length of time generally required in such cases.

This idea was first suggested to me by a case in which I was suing for a fee for an operation for club-foot. The case was of a congenital type, and had been previously operated on three times by as many different surgeons. The foot was, as might be expected, poorly developed, and, although my operation was a perfect success, the disparity in the size of the feet was, as might be inferred, very marked. The apparition of the "shrunken foot of the poor child," in combination with the testimony of an alleged surgeon who asserted that the foot had atrophied as a result of my having cut "some artery" during my operation and failure to put the foot in a proper dressing, was too much for the susceptibilities of the jury, and they tearfully found for the defendant. Cross-examination of the surgeon who testified to the condition of the foot developed the fact that he did not know the posterior tibial artery from the circle of Willis, and that a collateral circulation was a *terra incognita* to him, yet that jury of "peers" of the realm could not see or hear anything not embraced in the object-lesson of that undeveloped foot.

The idea then suggested itself to me that object-lessons were, after all, the most potent methods of reaching the perceptive faculties of the average jury, and that the surgeon might as well take advantage of it by preserving in a systematic manner all dressings and appliances used in fractures, dislocations, operations for deformities, etc. In a fracture of the leg, for example, nothing is easier than to apply as a primary dressing an accurately-moulded felt splint. This is to be identified, both on its application and on its removal, by the surgeon's assistants. The dates of application and of removal can be marked upon the splints. These moulded felt splints differ from set metallic or wooden splints in that they show accurately the conformation of the individual limb at the time of the dressing. If the limb be straight and in proper position the record of the fact is indisputable. What has been said of the felt or provisional splints applies even more pertinently to plaster-of-Paris dressings. Whether used as a primary or secondary dressing the plaster cast is an infallible criterion of the position of the limb at the time not only of the dressing but of removal of the cast. The same precautions of identification and recording of dates should be taken as with the felt splints.

The practicality of this procedure is at once apparent. It is not difficult to convince even a stupid jury that the duty of the surgeon in fractures and dislocations begins and ends with a proper reduction, proper dressings, and maintenance of rest for a certain more or less arbitrary period. The mould of the limb in question when held up before the average jury by an intelligent lawyer and identified by credible witnesses is an argument more powerful than a deformed limb, made so by the patient's carelessness or neglect after dismissal, or by a change of doctors in the midst of the case. It is an object-lesson much more potent than a complaint of functional dis-

turbance of a part, as in fractures in the vicinity of joints, dislocations, sprains, etc. The query of the lawyer, "Could such a mould be formed by anything but a straight and properly-set limb?" will be a very helpful interrogation in certain malpractice suits. In the event of a change of surgeons during the progress of a fracture case, it is the surgeon's imperative duty to obtain possession of his dressings without delay,—under legal compulsion if necessary. My own experience with some of my ethical brethren impels me to believe that my successor in the case could not always be trusted implicitly.

A recent experience of my own shows the practicality of the plan which I have outlined. I treated a fracture of both tibia and fibula due to a fall during a scuffle, the leg being violently twisted under the patient and receiving his own and his opponent's weight as he fell. Felt splints were applied primarily, and allowed to remain two weeks, at the end of which time plaster was applied and allowed to remain for eight weeks. As the fellow was notoriously untrustworthy, I took extraordinary precautions in the identification of splints, etc. The man being a hard drinker and syphilitic, I feared imperfect union, and, as the œdema of the leg was still marked, I directed the patient to walk about on crutches after removal of the cast. I did not see him for some time, and when I did get the opportunity of examining the limb I found soft union and marked deformity. I afterwards learned that the fellow had danced a jig during a drunken spree shortly after the cast was removed. I was shortly afterwards honored by a visit from an obscure attorney, who wished to "settle the case." I promptly brought out my "object-lessons," told him to blaze away with his suit, and gently but persuasively tendered him a view of my office-door—from the outside. I understood afterwards that he told his client that he had no case. It is hardly necessary to state that this was the last I heard of the matter. Possibly my forcible arguments may have had something to do with the lawyer's change of heart, but I incline to the belief that the "object-lesson" was his principal reason for abandoning a doubtful cause.

REPORT OF THE TREATMENT OF FORTY-EIGHT CONSECUTIVE CASES OF TYPHOID FEVER BY THE ADMINISTRATION OF THYMIC ACID.[1]

BY E. E. WIBLE, M.D.,

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So much has been written upon the subject of typhoid fever, its etiology, pathology, symptomatology, and therapeusis, that for the purpose of this paper reference will only be made to its etiology and treatment.

That the disease is of bacterial origin is the theory now almost universally acknowledged, although cases occur quite frequently wherein one is utterly unable to definitely account for its origin, especially in the rural districts, where cases occur sporadically.

Assuming the bacterial hypothesis to be correct, it is probable that the bacillus of Eberth is ingested into the alimentary canal of the human organism by means of contaminated water. By the proliferation of these germs in the intestinal canal ptomaines are produced, which, when absorbed by the lymphatics, cause that morbid condition which Fordyce defines as "a disease of the whole system in every kind of sense."

Of the lymphatic system, the Peyer's patches and solitary glands of the ileum undergo the most extensive pathological process, terminating in ulceration and necrosis.

In view of the accepted mycotic origin of the disease and its subsequent effect on the system, and especially the intestinal tract, it is but rational that the treatment to be exhibited should be anti-mycotic and antiseptic.

The expectant plan of treatment so much in vogue is unscientific, as by it no endeavor is made to eliminate or ameliorate the disease. The self-limitation of the disease and the tendency in the majority of cases to recovery are the means by which convalescence is brought about in the expectant plan of treatment.

During the autumn and winter of 1892 I treated in the Homestead Steel-Works Hospital forty-eight consecutive cases of typhoid fever by the administration of five grains of thymol (thymic acid) every three hours, continuing its administration until convalescence was established, or until the patient's temperature approached the normal. Thymol is derived from the oil of the thymus vulgaris or common garden thyme, possessing powerful and permanent antiseptic and disinfecting properties analogous to car-

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[1] Read before the Westmoreland County Medical Society, at Greensburg, Pa., February 7, 1893.

bolic acid and creosote, but comparatively harmless as compared to these, and does not have the disagreeable odor of carbolic acid. It can be administered internally either formed into an emulsion or dissolved in alcohol; but a more desirable form of administration is in pill-form, using soap or glucose as an excipient.

The cases of this report were all true cases of typhoid fever; as correct clinical temperature-charts were kept, registering the temperature as taken in the axilla and the usual signs and symptoms noted, so as to make the diagnosis as certain as can ever be made, and no so-called abortive cases are comprised in this number. In those cases that died autopsies were held, thus clearing up any doubt as to their correct diagnosis.

While this is not a large series of cases, yet I think it sufficiently so to warrant me in extolling the plan of treatment I pursued. I want to emphasize the efficacy of the thymol treatment by stating that of these forty-eight cases there were but three deaths: one of these was admitted in a moribund condition, and died within twenty-four hours after admission; the second was a case admitted in the fourth week of illness, in a typhoid state, having had no medical attention during this time and obviously improper food and nursing; the third death occurred five days after the patient's admission to the hospital. Excluding the case admitted in a moribund condition, leaving but two deaths, we then have attained the very low rate of mortality of four per cent. The result of the thymol treatment is also eminently satisfactory in regard to the length of the course of the disease, as the average number of days the patients that recovered remained in the hospital was a fraction less than thirty. The only means of treatment reported[1] that approaches this low death-rate is by the cold-bath plan of Dr. Brand, employed in the German Hospital, Philadelphia, where, in a series of one hundred and sixty selected cases they attained a mortality of five per cent., and the average number of days the non-fatal cases remained in the hospital was thirty-five. The mortality in the majority of hospitals ranges from ten to thirty per cent.[2] The death-rate at the Montreal General Hospital for twenty years was 11.2 per cent.[3] Of the cases treated at the St. Francis Hospital, of New York City, during the last thirteen years there was a mortality of sixteen per cent. The average of the highest temperatures of each case was $103\frac{4}{5}°$. The highest temperature of any one case was $105\frac{2}{5}°$ in the axilla, and this elevation remained for five days before it gradually lowered. The cold wet-pack was employed to lower the temperature.

The patients were all males, between the ages of nineteen and fifty-five years: their average age was twenty-six years.

The three deaths were due to exhaustion, superinduced by the typhoid

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[1] Medical News, November 26, 1892.

[2] Osler's Practice of Medicine.

[3] New York Medical Record, November 26, 1892.

poison. There were three cases complicated by intestinal hemorrhage, but all recovered. Three of the number suffered a relapse or re-infection, and made recoveries. Of the other complications that occurred among this series there were two cases of parotiditis, three cases of suppurative otitis, one of phlebitis, and one of periostitis.

With the exception of parotiditis in one case, none of these complications were present in the fatal cases.

The following are some of the special symptoms or complications which occur in some cases, and the treatment I employ in each, viz.: for headache, phenacetin; for high temperature, the cold wet-pack; for insomnia, sulphate of morphine; for bronchitis, muriate of ammonium; for cardiac weakness, nitro-glycerin or whiskey; for intestinal hemorrhage, sulphate of morphine and ergotin hypodermically; for the diarrhœa, salicylate of bismuth; for abdominal pain or tympanites, turpentine stupes; for delirium or typhoid state, brandy or whiskey. During convalescence I administer a pill containing quinine sulphate, iron proto-carbonate, and strychnine sulphate.

The following directions I have printed and placed in the hands of the nurses, viz.:

DIRECTIONS TO THE NURSES CONCERNING THE TREATMENT OF THE TYPHOID FEVER PATIENTS.

1. Give each patient five grains of thymol every three hours.

2. Give ten grains of the salicylate of bismuth every three hours when there are more than three or four stools in twenty-four hours.

3. Give each patient two quarts of skimmed milk every twenty-four hours.

4. Give cracked ice and ice-water freely, allowing from three to eight quarts in twenty-four hours.

5. If the diarrhœa is not marked, beef-tea or chicken-broth may be given once or twice a day.

6. If the diarrhœa is excessive, give nothing but milk and water.

7. When the patient's temperature rises to or above 103°, give sponge-baths every half-hour, or employ the cold wet-pack until the temperature is reduced below 103°.

8. For abdominal pain or tympanites apply turpentine stupes.

9. Cleanse and disinfect the mouth with a solution of boracic acid.

10. Disinfect the stools and urine with a thick solution of the chloride of lime or a five-per-cent. solution of carbolic acid.

11. Give no solid food until the evening temperature has been normal ten days.

12. Patients may be allowed to sit up for a short time about the end of the first week of convalescence.

THREE CASES OF INSANITY, WITH AUTOPSIES.

BY E. D. BONDURANT, M.D.,

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ACUTE MANIACAL EXCITEMENT, WITH DISEASE OF ONE SUPRA-RENAL BODY.

A COLORED woman aged about twenty-five, an entire stranger in the city, was found wandering aimlessly about the streets of Birmingham, in the initial stage of acute mania. She was placed in the county jail for safe keeping, and five weeks later was transferred to the insane hospital at Tuscaloosa. During her stay in the jail she was constantly noisy, turbulent, violent, restless, filthy in habits, abusive in language, etc., becoming gradually worse as time passed. No previous history could be obtained.

On admission she was in a state of active excitement, with fleeting delusions, hallucinations, great incoherence, and irritability. She seemed in fair bodily health, such examination as could, in her maniacal condition, be made, discovering no physical lesion beyond an umbilical hernia, which was easily reduced and gave no trouble. The urine was not examined. There was some anæmia. She was not emaciated, and at that time not very feeble. There was a slight rise of temperature; coated tongue; loss of appetite and wakefulness. She remained in this condition of excitement, becoming steadily weaker and losing flesh; towards the close she seemed at times dull and confused, and later became somnolent. Three weeks after admission she died of what, for want of more distinctive diagnostic symptoms, we recorded as maniacal exhaustion.

Autopsy, seven hours after death.—Body but little emaciated; muscular system well developed.

Head: Forehead low, narrow but projecting; head broad posteriorly; circumference fifty-three and a half centimetres. Ears ill-formed; lobes rudimentary and attached. There is striking facial and cranial asymmetry, the right half of each being the larger, with a distinct bulge in the parietal region on this side. The scalp is thick and tough; calvarium dense, hard; diploe absent in places; thickness of bone varies from five to eight centimetres. Sutures open; no lesion. *Dura* shows some irregular opacities, and adheres to pia at several points over the vertex. *Pia* is injected, thickened, opalescent, firm, and tough; it contains much fluid in its meshes. In two or three places over the anterior lobe it adheres to the underlying convolutions; in the longitudinal fissure it adheres to the pia of the opposite side; and similar adhesions are found between the pia of the cerebrum and cerebellum. No disease of the larger arteries, nor anomalies of anatomical arrangement of the vessels of the circle of Willis. *Brain:* slight if any atrophy.

Weight, immediately after removal, including pia, forty ounces. The right hemisphere is noticeably larger than the left, corresponding with the greater size of the right half of the calvarium. The convolutions on both sides are somewhat atypical in arrangement. The brain tissue is firm; gray matter thin, but dark in color and distinctly laminated. Both lateral ventricles are dilated,—the right especially so; its posterior half more so than the anterior end. No lesion of the choroids, velum, or ependyma. The right crus is smaller than the left; the right half of the pons is the smaller. Pia covering the medulla is deeply pigmented. The spinal cord was not removed.

Thorax.—Heart is of normal appearance; weight eight ounces. *Lungs:* a few old pleuritic adhesions on both sides; much hypostasis, thickening, and inflammatory infiltration of bronchial mucous membrane; a small pneumonic patch in lower lobe of left lung posteriorly.

Abdomen.—Umbilical hernia, its sac three inches in diameter, composed of thinned integument and a little underlying fibrinous tissue; a section of transverse colon occupies its sac; easily reducible. *Kidneys:* right weighs four and a quarter, left four and three-quarters ounces. They are firm and pale, with non-adherent capsule. The surface of the kidneys is smooth; the cortex is of normal thickness, is pale, and its markings are somewhat obscured. Pyramids also are pale, and outlines indistinct. *Suprarenals:* the right is small, flat, firm; its cortex is pale yellowish; medulla dark; no gross lesion. Weight 4.75 grammes. The left is much larger, is tough, indurated, irregularly triangular in cross section, and all resemblance to normal suprarenal tissue has been destroyed; on section numerous pale cheesy masses are found. The middle portion of the gland seems more involved than its two ends. Its weight is 9.2 grammes. The other organs in the abdomen and pelvis are normal.

The cortex cerebri and the pia, basal ganglia, pons, and medulla were examined microscopically, without the detection of distinctive pathological changes. *The kidneys* showed a slight granular and degenerative change in the tubal cells; here and there a cast in situ was discovered, and there were sparingly distributed through the organ small groups of lymphoid cells, showing in one or two instances a tendency to caseous degeneration in the centre (possibly early stages of tubercular deposits?) One suprarenal body on examination was found to present a typical picture of tubercular disease,—caseous nodules undergoing degeneration; granulation tissue; enormous numbers of giant cells in various sizes and forms. The blood-vessels were nearly normal. The nerves were not noticeably affected; only at one edge of the triangular-shaped organ could any trace of suprarenal tissue be found. The other gland was not affected.

It will be seen that the various organs were approximately normal, with the exception of the one suprarenal capsule. The cœliac ganglion and sympathetic nerves were, however, not examined. Bronzing of the skin, if such existed, was masked by the extreme blackness of her complexion, and no change in the mucous membranes was noted.

It is unfortunate that the clinical features of the case were not more carefully studied; as far as can be determined after its close, the case was one of ordinary "acute mania" or typho-mania with rapid exhaustion and death; the only demonstrably serious bodily lesion being tubercular disease of one suprarenal gland. The possible causative influence of the suprarenal disease must remain presumptive only. The usual lesion of "Addison's disease" is tubercular degeneration of the capsule, usually bilateral; two cases at least have, however, been recorded in which a single gland was affected.

All writers upon the subject of Addison's disease mention as prominent symptoms nervous disorders of various kinds and grades, "sometimes maniacal in character;" and Osler speaks of the nervous symptoms as the most constant and important of any. Disease of the suprarenals has always been supposed to produce very serious disturbance in the animal economy. It is quite conceivable that the acute mania in this case was a symptom of the so-called "Addison's disease."

KNIFE WOUND OF THE BRAIN WITHOUT SERIOUS SYMPTOMS.

A full-blooded negro man, aged thirty-seven. Very little is known of his family or early individual history. A farm laborer, no education; married, and has several healthy children. Never very intelligent, but has earned a living and shown no definite symptoms of mental aberration until recently. Two months ago, after a period of vague ill health, he grew melancholy; depression of spirits progressively increased; he developed persecutory delusions and later auditory and visual hallucinations. At time of admission to the hospital he presented the usual picture of an acute melancholia, with the symptoms above outlined. There were signs of the insane constitution in the ill-formed ears and asymmetrical head. He was somewhat reduced in strength; the only physical lesion discovered upon examination was that indicated by the presence of albumin in the urine, with numerous casts of various kinds.

He improved slowly from the first, and was soon sent out to work on the farm, which work he continued with increasing efficiency to the time of his death. As he gained flesh, his mental condition improved, and he was soon considered convalescent. His appetite became most voracious, and he several times came near choking himself by bolting his food; and, finally, three months after his admission, he succeeded in doing this effectually,—was eating dinner, when he suddenly choked, fell over, and died before assistance could reach him.

Autopsy, two hours after death.—Body well nourished, muscular; some rigidity. *Head:* scalp normal; cranium shows some asymmetry; circumference 54.3, antero-posterior diameter 19.2, transverse diameter 14.9 centimetres. As calvarium is removed a part of the blade of a stout pocket-knife is found piercing the right parietal bone, two inches from sagittal and one inch posterior to coronal suture; only a small corner of the blade is

visible externally, the break being mostly below the outer table, and covered by newly-formed osseous tissue; internally the blade—three-quarters of an inch long by one-quarter of an inch wide—has cut through the membranes and wounded the anterior frontal convolution to the depth of one-half of an inch or more. As it is drawn out a fibrous capsule is pulled with it, seemingly continuous with inner layer of the dura; this capsule had closely invested the knife point, which lay in it as in a sheath. There was a little softening and yellowish discoloration of the brain tissue for a minute distance around the wound; but beyond this the cerebral tissue was normal. The knife blade was bright and untarnished. After shaving the scalp and searching carefully, a very small and inconspicuous scar was discovered at point of entrance. The brain with the pia attached weighed forty-six and one-eighth ounces. No other lesion was discovered. The organs of the chest and abdomen were practically normal. The mouth, larynx, trachea, and bronchi—quite to the smaller ramifications of the latter—were filled with bread and food of various kinds—a quite remarkable amount, sufficient to entirely occlude the air-passages.

The knife wound was evidently of long standing, though no history of such injury was given at the time of the patient's admission. A letter of inquiry addressed to the physician who had signed the certificate of insanity, and who had known the man for years, elicited the information that some five years previous patient had a fight with another negro; his adversary used his knife, cut patient in the scalp, and stated after the fray that he had broken the blade of his knife in the man's head, exhibiting the remainder of the blade in evidence. Patient complained of headache for several days, but this soon passed away, leaving no untoward symptoms. He seemed in good health and did hard work up to the time he became insane, nearly five years later.

The case is of twofold interest,—as an example of cerebral injury without definite symptoms, and as an instance of death from asphyxia by food in the air-passages. This latter is a not very rare cause of death among the feeble and extremely demented, but it is unusual that a healthy, vigorous, fairly rational, and convalescing patient ends his life in this manner.

MELANCHOLIA WITH DEMENTIA, ACCOMPANYING TUBERCULAR MENINGITIS.

Colored man, age thirty-eight. A farm laborer, uneducated. Family history unobtainable. Four years ago was convicted of larceny and sent to the penitentiary; within a few months thereafter a mild melancholia developed, its chief symptoms being general intellectual inertia, with vague and changing persecutory delusions and despondency. He was transferred to the Insane Hospital about a year after the first symptoms of mental disorder were shown.

At the time of his admission he was somewhat reduced in flesh, but gave no definite symptoms of bodily disease, and any tuberculosis which

may have existed was not detected. He was apathetic, despondent, and exhibited persecutory delusions. After remaining stationary for several months, a slow improvement in both mental and physical condition was inaugurated, and at the expiration of eighteen months patient seemed entirely restored. After his discharge from the hospital had been recommended he suddenly passed into a state of active melancholia with delusions, dread, suspicion, thought he was poisoned, that persons "worked against him," that he was to be punished, etc. Shortly after this a *tuberculosis pulmonum* was diagnosed and ran its usual course. The increasing physical weakness was accompanied by a progressive change for the worse in the mental symptoms; the latter soon assumed the form of rapidly deepening dementia, and in a few months the patient was reduced to a condition of complete fatuity, his existence from this time being chiefly vegetative. He died six months after the tubercular disease was discovered.

Autopsy, six hours after death.—Body that of a medium-size full-blooded negro man, much emaciated. Rigor mortis absent. No marks nor noteworthy external appearances.

Head: scalp tough and thick; no bruises nor scars. *Calvarium:* symmetrical; bone dense and hard; diploe in scant quantity, pale; sutures closed; inner surface deeply grooved and pitted. *Dura:* moderately adherent to calvarium; sinuses contain fluid blood; numerous points of adhesion to pia over convexity (old *pachymeningitis interna*). Patches of localized thickening and opacity. *Pia:* thickened and œdematous, and shows a white cloudiness along the fissures of Sylvius and Rolando (most marked on the left side), over the anterior portion of the base, and in the longitudinal fissure at its anterior end. In the same area are also found a large number of pale yellowish white, firm cheesy nodules varying in size from scarcely visible points to irregular patches a half inch in diameter. The brain tissue underneath the larger patches shows distinct depression, and apparently takes part in the degenerative change. The pia covering the "six-sided space" is greatly thickened, and is liberally sprinkled with small nodules. There are numerous points of adhesion between the pia and the underlying convolutions. *Brain:* weight, immediately after removal, including pia, fifty-four and a half ounces. Convolutional arrangement fairly typical, the only abnormality being a connection, on each side, between the fissura calcarina and the fissura hippocampi. Consistency firm; gray matter of normal thickness; irregular shallow depressions underneath some of the tubercular patches (the largest one in "paracentral lobule" of left side), and in places an apparent implication of the cortex in the tubercular process ("transferrence by contiguity," in all probability). The anterior extremity of the corpus callosum, together with the anterior end of each gyrus fornicatus, is softened and partially broken down. Over the softened area tubercular nodules are especially numerous. The brain contains much blood, which oozes from the cut surfaces. The lateral ventricles are not visibly dilated. The ependyma is smooth and normal. The velum, be-

yond congestion, is normal. There are several small, firm, whitish, possibly tubercular points in the choroid plexus of the left side. Fourth ventricle normal. No further lesion brought to light by dissection.

Examination of chest and abdominal cavity shows: a high degree of tubercular infiltration in all lobes of both lungs; cavities in upper lobes, both sides; tubercular nodules upon and inflammation of right pleura, with numerous adhesions and some fluid in pleural sac. Tubercular ulcers in the small intestine. Tubercular infiltration of the mesenteric and bronchial lymph nodes. *Right kidney:* weight five and a quarter ounces. Firm, capsule readily separable, but brings away little bits of tissue at several points. Cortex somewhat thickened, and of a pale brownish-yellow color, upon which the dark-red cortical markings stand out in brilliant relief. Pyramids are dark red; pelvis and ureter normal. *Left kidney:* smaller than its fellow, and firmer; weight four ounces. General appearance as above. Both kidneys are well filled with blood, which flows freely from cut surfaces. The other organs are in gross appearance normal.

Microscopic examination of the deposits in the pia shows a very typical tubercular structure, granulation tissue, with caseous degenerative changes and a few giant cells. The walls of the blood-vessels are greatly thickened, and in not a few there is entire obliteration of the lumen. The underlying brain substance, in a large percentage of the nodules examined, is more or less implicated in the disease, with approximately complete destruction of the included nerve elements. Search for a thrombus, embolus, or obliterating inflammatory process in the anterior cerebral arteries (supplying softened area) is without positive result.

The only feature of especial pathological interest in the above case is the tubercular disease of the pia mater, a by no means common condition in our experience, having been found in this instance alone among some seventy cases in which tuberculosis of the lungs or other organs was discovered *post mortem*. The distribution of the caseous patches, in the vicinity of the circle of Willis and in the area supplied by the two anterior and the left middle cerebral arteries, clearly indicates the arteries as the channels of infection. The direct extension of the degenerative change from the larger nodules in the pia to the contiguous brain tissue, together with the necessarily serious interference with cortical nutrition due to the in many places entire obliteration of the lumen of the smaller arteries, may with propriety be regarded as the physical basis of the most prominent mental symptom,—extreme dementia.

In its earlier stages the intellectual disorder assumes the form of a typical "phthisical insanity" as described by Clouston and other writers, its characteristic features being melancholia with partially systematized and fixed delusions of persecution and suspicion.

USE OF THE ACTUAL CAUTERY IN ULCER OF THE CORNEA, WITH CASES.

BY B. L. MILLIKIN, M.D.,

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To have a method of treatment for ulcers of the cornea at once effective, prompt, easily used, and always at hand is a desideratum much to be wished for in a class of cases which often taxes to the utmost our best efforts. No disease is more rapidly destructive of corneal tissue and consequent impairment of vision than certain classes of ulcers, and we all meet with them comparatively frequently. So rapid are they in their development at times that in a few days the conjunctiva may be completely destroyed. Especially is this true of the variety of ulcer known as serpiginous, and also that which has a tendency to perforation of the cornea with the accumulation of pus in the anterior chamber, called hypopyon.

The following cases will serve as illustrations of classes wherein the actual cautery may be of much service.

CASE I.—J. D. C., Jr., a gentleman with the best of hygienic surroundings, came to me on October 22, 1891, with the following history. For two or three days he had noticed the right eye feeling a little uncomfortable,—some redness, photophobia, lachrymation, etc. On examination I found at the lower inner edge of the cornea a small whitish spot of ulceration, very superficial, and covering an area of a couple of lines in extent. By the second day following this spot had increased very perceptibly in extent, following the curve of the corneal border, and a new small spot of infection had started up on either side of the original one. By the 25th of October these three foci of infection had coalesced, the ulcer had increased in depth, and the eye began to show evidences of the rapid development of a serpiginous ulcer. Notwithstanding the prompt and thorough use of mild antiseptic washes, frequently repeated, together with complete rest of accommodation by the employment of a mydriatic, and rest of the patient, the case was evidently growing rapidly worse. The eye in the mean time had become exquisitely sensitive and painful, so much so that the patient could not sleep.

Under cocaine the entire area of the ulcer was freely cauterized with the actual cautery, going as deeply into the corneal tissue as the ulcer seemed to extend. The eye was then bandaged with a compress of absorbent cotton moistened in a solution of bichloride of mercury one to five thousand. The effect was marked and instantaneous, and by the 27th, two days after the cauterization, the whole character of the ulcer had changed, and now

took on a healthy appearance. The pain had ceased almost entirely, and the case went on to a rapid and uninterrupted recovery.

Case II.—On the 6th of August, 1891, I was telegraphed to go to the country to see L. B. R., who gave me the following history. Two weeks before, while milking, he was switched in the left eye with a cow's tail, from which time he had suffered much pain, with lachrymation, intense photophobia, discharge, etc. I found him greatly depressed, with no appetite, having rapidly lost flesh, and he looked like a sick man. The eye was so sensitive to light that it was difficult to examine it. There was much swelling and congestion of the conjunctiva, and puffing of the eyelids. On the cornea, just below the lower border of the pupil, was a large ulcer, deep, perforating the cornea, and the lower portion of the anterior chamber contained a considerable amount of pus. On the following day, at my request, he came to the city and was placed in Charity Hospital, and on the afternoon of the same day, under a four per cent. solution of cocaine, the ulcer was freely cauterized, following well down through the perforated portion of the cornea to the membrane of Descemet. The eye was thoroughly cleansed, and a compress and bandage applied, as in the other case. That night was the first good night's sleep he had had for nearly two weeks, and from then on the eye made an uninterrupted recovery. The pus in the anterior chamber was completely absorbed within less than a week, and the patient did not suffer any pain after the cauterization. I have recently seen this case, and beyond a central opacity of the cornea, the eye is perfectly well, and he has fairly useful vision.

Case III.—C. H. C. came to me from Tiffin, Ohio, on the 18th of April last, and gave the following history. Three days before, while riding on horseback, some sand flew up from the horse's foot, striking him in the eye, evidently cutting the cornea just below the central portion, producing a good deal of discomfort for the time. Two days later his friends began to notice that the cornea was hazy, and his physician detected pus in the anterior chamber. Upon examination I found just below the central portion of the cornea a round spot of ulceration about two or three millimetres in diameter, crater-shaped; and from the bottom of this, extending to the lower portion of the anterior chamber, was a whitish line of pus, and a considerable quantity of pus accumulated in the anterior chamber. There was much redness of the eye, lachrymation, and photophobia, but not much pain at the time I saw him.

Under cocaine the whole area of the ulcer was freely cauterized with the hot iron, care being taken to go well down to the bottom of it. The eye was thoroughly washed with the bichloride solution, one to five thousand, and a compress and bandage applied. By the 21st the hypopyon had nearly disappeared, and the wound was filling up satisfactorily.

On April 28 he complained of having had pain the past three nights, especially annoying the last night, extending up through the side of the head. There was no evidence of extension of the destructive process, but

the central portion of the ulcer was filled with a dense whitish material, which I feared might be infectious in character. For this reason, and to allay the pain, I again cauterized the central portion of the ulcer, with the result of the rapid cessation of the pain from that time on and the gradual improvement of the condition of the eyes, so that three weeks from the day I first saw him he left for home. I have since heard through his physician that the eye has continued to do well. Of course there will be a large, somewhat dense scar, and, on account of its location, almost directly in front of the pupil, the vision will be considerably interfered with.

In conjunctivitis with the use of the actual cautery in these cases entire cleanliness is necessary. I have also been in the habit of using a solution of atropine to keep the accommodation inactive. For a few days, also, I use a compress and bandage, the compress being moistened with a one to five-thousand solution of bichloride of mercury, as the eye is thus usually more comfortable and is better protected against infection.

The kind of cautery used and its method of application are matters of considerable importance. The best form of cautery is undoubtedly the galvano-cautery, which is readily controlled, easily kept at any degree of redness required, and small in bulk, so that the area cauterized can be well regulated. On the other hand, one must always have a battery in order and carry it about, which is often inconvenient. To obviate these disadvantages, I have had made for me a number of different sized and shaped points of steel, which can be slipped into a handle as needed, and with a spirit-lamp held close to the patient can be readily heated and used with most satisfactory results.

In the use of the cautery care must be taken not to destroy the sound tissue, for this only increases the size of the remaining scar. For this purpose judgment and experience are needed, and it is wiser to cauterize a second or a third time rather than to destroy the uninfected tissue. The beneficial effect of the cautery is undoubtedly due to the destruction of the infectious material in such wounds. I assure you the relief afforded patients affected with various kinds of ulcers of the cornea is often abundant, instantaneous, and gratifying alike to patient and physician.

A REVIEW OF THE PRESENT TREATMENT OF PULMONARY TUBERCULOSIS IN FRANCE.

BY THOMAS LINN, M.D.,

Nice, France.

THE treatment of phthisis in France has been constantly improving as new ideas have been introduced. Opinion varies as to the importance of Koch's bacillus. The majority favor the microbian theory. Nevertheless, the ideas of the minority are not without interest. Let me mention first those of Professor Peter, who has little, if any, faith in the influence of microbes over the etiology of this disease. He thinks that anybody may become tubercular, and that all poorly-built, weak people are predisposed to tuberculosis from this very fact, and no other. Prominent in this class are those whom he calls the "lymphatics." Such cases have been described by Dr. Peter as a trunk with two branches, rheumatism and scrofula. This last malady, he claims, is a general disease quite distinct from tuberculosis. It has its serious manifestations, such as white tumors or swellings about the joints and elsewhere, and certain forms of a cheesy adenitis, with some varieties of lupus.

All these cases have been described by others as tubercular, but very few, if any, bacilli could be found in the new growths. Gouty people become tubercular, or at least have children who inherit the malady because of the organic degeneration of the parent. In syphilis the patient is weakened by the evolution of his disease, and his digestion is impaired, so that he himself or his progeny becomes tubercular. Then, according to Professor Peter, there are two other great points in the etiology of phthisis that have nothing to do with the bacillus. The first and most important is inanition by reason of defects in the digestive tract, and the second, inanition through the respiratory organs. The causes of the first are such diseases as stricture of the œsophagus, simple gastric ulcer, cancer of the stomach, etc. Even dyspepsia, when found in hysterical subjects, leads to tuberculosis.

Next, the maladies of the respiratory apparatus that restrict the action of the lungs bring about phthisis. For instance, hydatid cysts of considerable size have been found to produce tubercle of the lungs in the part compressed by the tumor. Serous pleurisy, chronic bronchitis with dilatation of the bronchial tubes, asthma, etc., are often followed by phthisis. Besides these causes, two classes of workmen—those who work in confined spaces and those who work in very hot rooms—get the malady, and yet the bacilli have nothing to do with this form of tuberculosis, or at least its primary cause.

The part that heredity takes in the etiology has been much discussed. Dr. Hutinel, of the Children's Hospital, has made a series of studies, and finds that it is extremely rare that tuberculosis is transmitted from mother to child. He made a list of twenty thousand six hundred and sixteen children that had been abandoned by their parents, and found only seventeen of them who were tubercular, yet it is a well-known fact that many of these children who are found in orphan asylums are from mothers who have died of phthisis in the hospitals. It should also be mentioned that they do well under good food and the hygiene of the public institutions, and whatever hereditary influence may have been present is counteracted by this simple means.

We need not stop to give the already well-known views of the majority who favor the microbian theory, but pass on at once to the treatment. Since the discovery of Koch's bacillus the therapeutists have made war upon it, and it must be admitted that the results are far from encouraging. The "bacillicide" treatment often seems to hurt the patients more than the bacilli. Inhalations of hydrofluoric acid, injections of various gases, breathing of superheated air, and many other methods, have had their claims of special curative virtues investigated, but are all now abandoned. Yet it was certainly noticed at first that they all seemed to do good; some of the secondary symptoms were benefited for a time. Dr. Peter says it was a "moral effect," for the patients soon relapsed, and the regular evolution of their disease progressed. Professor Grancher is trying anti-tubercular vaccination on animals, but there seems to be too much danger in the method to employ it upon man. Already the injections of goat and dog serum have been abandoned.

Excellent results may be secured by cod-liver oil, when the stomach will support its use, alternating with hypophosphites and arsenic in summer-time. Some of the tar products and local revulsion retain their favor; while cough, sweating, and other symptoms are met with the usual remedies.

Professor Germain Sée is in the habit of giving capsules of oleic acid internally. They each contain eight grains, and one is to be taken three times daily; with this he recommends a diet consisting principally of milk, fats, butter, cream, chocolate, ham, pork, beef, mutton, cheese, oils, etc. Besides this, at present, he advises his "treatment of phthisis by artificial atmospheres under pressure." He claims that ordinary inhalations never penetrate beyond the pharynx, certainly not below the larynx, so that they cannot reach the surface of the bronchial mucous membrane, still less the submucous membranes, which are the real seat of broncho-pulmonary tuberculosis. Condensed gases only can reach this region and pass into the smaller ramifications of the bronchial tract, and they must be composed of substances that would volatilize there. To accomplish this result small rooms are filled with creosote vapor under pressure. The first condition of any artificial atmosphere is that it should be inoffensive to the organism and be capable of penetration into remote ramifications of the lungs. This

medication, according to Professor Sée, has a true antiseptic action on the bacilli and actually prevents their hatching and multiplication.

Creosote was discovered in 1832 by Reichenbach, and its composition was well established in 1853 by Gorup-Besanez, who showed that it was a mixture of guaiacol and cresol with a little phenol and cresylol. Little or nothing is known in regard to it. Its physiological action is almost *nil*, and its toxicology is about the same. Its therapeutic action was almost forgotten up to 1877, when Bouchard and Gimbert applied it to the treatment of phthisis. They used pills, capsules, and a preparation of wine of creosote. Later Gimbert injected it under the skin, mixed with oil, and succeeded by this means in getting a larger quantity absorbed than when given by the stomach. All this seems to have been forgotten when in Germany Fraenzel and Sommerbrodt brought up the question again. The former reported at the Medical Congress in Berlin in 1887 that he had given a wine of creosote and gentian, and claimed that he had arrested phthisis with it, and to have succeeded in diminishing the number of the bacilli. In one hundred patients, fifteen appeared to be completely cured. Notwithstanding this fair result, the author of this paper thought that the remedy was not a specific, but simply a tonic, and useful in decreasing the amount of secretion. Sommerbrodt treated his cases of phthisis with creosote for nine years, and claimed surprising results, such as amelioration of the general state, diminution of cough and sputum, augmentation of appetite, and in many cases dulness on percussion disappeared. He used capsules, and kept up the treatment for a year or more. Guttmann, in his interesting studies on this subject in 1880, said that the anti-microbic power of creosote was such that, if we could find a method of introducing enough creosote into the organism so that the blood should contain 1 to 4000 or 1 to 3000 of its total quantity for a long time, it would arrest the development of the bacilli.

Bourget, of Geneva, and Sahli, of Berne, proposed guaiacol, and Dr. Labadie-Lagrave, of Paris, used it in hypodermic injections in 1888 combined with iodoform. Roussel, of Paris, has for several years been making a propaganda for hypodermic injections of all kinds, and combined creosote with eucalyptol, a substance obtained by the distillation of eucalyptus. It has some analogy with terpine and terpinol, and there is no doubt that it acts on the bronchial mucous membrane in the same way. Dr. Germain Sée uses Dr. Dupont's pneumo-therapeutical establishment for his compressed creosote atmospheres. The patient is put into a metallic room, where the compressed air is charged with creosote and eucalyptol that is slowly allowed to enter. The pressure used is one-half an atmosphere. The air is first passed through prepared liquids in large glass bottles, and there becomes saturated with the drugs. The air enters the rooms at a rate varying from fifteen to twenty cubic metres an hour, for a space that measures five cubic metres' capacity. The duration of treatment is usually two hours, but the patient may stay in the room three or four hours every day if desired. The little

rooms in question are simply made. There are several of them constructed on the ground floor of a large store in the Rue Pyramides, Paris, and they consist of round sheet-iron cylinders, about four yards square inside, and look outside like a great steam-engine boiler on end, or a vertical steam-boiler. They are furnished inside with every comfort, and the patient is supplied with books, papers, and writing-material. The result of this treatment is being carefully noted, and will be published from time to time.

As to open-air treatment, we have not as yet any important public institutions in France which carry out the treatment like that of Görbersdorf and Falkenstein, in Germany, but many physicians recommend the system. It is probable that such institutions will shortly be established on the Mediterranean coast in the beautiful climate of the south of France, which is so favorable to open-air treatment. A sanitarium of this style is now being erected on the Revard Mountain, over Aix-les-Bains, which town has just opened a switch-back railroad running to the summit of this mountain. Besides this, for the past five years in France experiments have been going on to determine the curative action of ozone when administered to patients having tuberculosis and who are debilitated by anæmia. Ozone was discovered by Schoenbein in 1840, who considered it to be oxygen that appeared at the negative pole, and he said that there was also a positive kind of oxygen which he called "antozone." Williamson afterwards gave an opinion that ozone was peroxide of hydrogen in vapor. But these ideas have now only an historical interest. The more recent works of Becquerel, Marigny, Andrews, and Tait show that ozone is simply an allotropic modification of oxygen, the molecule of ozone holding three atoms of oxygen, while that of oxygen itself has only two. Ozone gas has a peculiar odor and it is very unstable, but its oxidizing power is very remarkable. It presents a blue coloration when in considerable quantity, and it is known to be more abundant in high altitudes than in low ones. It is supposed that its presence in the air of the high Swiss mountains of the Engadine, Davos, etc., accounts for the cures of pulmonary tuberculosis made there.

It was quite natural, then, that physicians long ago sought to make use of this gas, but they were deterred from doing so by many chemists and physiological teachers, such as Claude Bernard, Thénard, Boekel, Skouttenten, and others, who said that it would be very dangerous to submit even a healthy man for a long time to its emanations. Later studies, however, showed that the cause of the unpleasant symptoms observed in giving ozone was due to the fact that other gases were liberated with the ozone, owing to defective methods of preparation. It is now possible to procure absolutely pure ozone, and in 1889 Dr. Desnos, in the Charity Hospital, Paris, began its use in anæmic and tubercular patients. The results were excellent, as the patients rapidly regained all the appearances of good health. In a few weeks after using ozone their weight increased from ten to twelve pounds, oxyhæmoglobin increased from six per cent. up to ten per cent. in

the same time. These results were obtained with poor city hospital patients, and it was thought that if the advantage of a fine climate could be added to the treatment it would develop a permanent method of cure. Following out this idea, a large establishment was erected at St. Raphael, a small place between Hyères and Cannes, in the south of France, which has been fitted up with all the latest apparatus for the production of ozone in large quantities. Over four hundred patients a day can be treated there, and the ozone is produced by large electrical machines. Ozone itself is certainly a powerful germicide, and even if its action on Koch's bacillus is not yet proved, there is no question that it has a wonderful power to overcome the poverty of the blood, which is such a constant symptom in pulmonary tuberculosis. The example of this "ozono-therapeutic" institution has been quickly followed all over the south of France in the various health-resorts, and many "aérium" establishments have been founded for the treatment of phthisis by ozone, and compressed air saturated by creosote, eucalyptol (the eucalyptus-trees are found here in great number), etc.

There are some contra-indications to the inhalation treatment: even compressed gases will be prevented from acting by pus or profuse bronchial secretions stopping the way. Then, again, the apparatus required is very elaborate and costly, and cannot be secured in every place, so that many fall back on the more convenient hypodermic method of giving creosote. It is badly supported given internally in any way. Professor Peter says we must have a "pious care" over the stomach of tubercular patients, for if the digestive power is lost all is lost. The advantages of the hypodermic method are too well known to need much remark. Burlureaux says that in ten minutes after the injection of creosote the patient can taste it in the mouth. This shows its rapid absorption. Dr. Main, who studied in a recent Paris thesis the chemical composition of creosote, affirms again that beech-wood creosote is much superior to that obtained from coal-tar, as it is richer in guaiacol.

The instruments used in France for this purpose are Gimbert's injector, Burlureaux's apparatus, or Roussel's and other aseptic syringes.

The part selected is first washed with soap and water, then with a solution of corrosive sublimate. As to the place, many inject in the thoracodorsal region, some in the groin, others in the gluteal region, but anywhere that the subcutaneous tissue seems loose and capable of receiving a certain quantity of liquid may be selected. It is not considered here that this treatment should be used in all cases of phthisis. Those of the first and second period are selected, and the greatest success has been obtained in those who have but little, if any, fever and whose malady progresses slowly. The contra-indications followed are those that are shown by the fact that the drug itself is eliminated by the lungs and broncho-pulmonary tract by an increase of congestion there, or hyperæmia. Therefore inflammation, congestive states, fever, renal troubles, and hæmoptysis show that it must not be used then.

In doubtful cases it is usual to commence with guaiacol, which is combined with eucalyptol, as follows:

℞ Guaiacol, ʒiiss;
Eucalyptol, ʒi (gtt. xv);
Ol. olivæ, q.s. fʒiii.—M.
Sig.—One-half to one grain every two days.

Professor Peter gives the following guaiacol formula combined with iodoform:

Sweet almond oil, fʒiii;
Guaiacol, iiss;
Iodoform, grs. xv.—M.
Sig.—Commence with one grain every other day, and increase the dose until the patient takes five grains per day.

Dr. Burlureaux gives creosote as follows for hypodermic injections:

℞ Pure beech-wood creosote, ʒiiss;
Sterilized olive oil, fʒv.—M.

All oils used must be sterilized in an oven at a temperature of at least 120° C. The dose of the above is at first half a grain, then a grain, and so on up to two and a half, according to the tolerance of the patient. The injection is made very slowly, and great care should be taken not to penetrate a vein, which might cause an embolism. In closing this review we should like to make it clear that the opinion here in regard to creosote treatment is that it is the best thing we have at present to prevent the multiplication of the bacilli. It is quite possible that it acts as a balsamic, but there is no doubt that there is a modification of the chronic inflammation of the broncho-pulmonary mucous membranes after its use. Even if it is not a parasiticide and it only saturates the organism with a substance that will prevent the invasion of the bacilli rather than destroy them, or even if it is a real antiseptic antidote, we have at least in creosote the best modern means to counteract pulmonary tuberculosis.

CLINICAL LECTURES.

HEPATIC INSUFFICIENCY—ITS DIAGNOSIS AND TREATMENT.

BY HENRI HUCHARD, M.D.,
Physician to Hôpital Bichat, Paris.

GENTLEMEN,—We have had an opportunity of observing this week three patients who were all of them troubled with sclerosis of the liver. One had hypertrophic sclerosis, and the other two had the atrophic form. Two have yielded to treatment fairly well, but the third patient has succumbed, yet at first she seemed to be less ill than the others. One of the cases had a pronounced jaundice and considerable pleural effusion; another had an abdominal ascites, which reaccumulated after tapping so rapidly that it almost caused us to make a false diagnosis. The woman who died had only a moderate quantity of fluid in the abdominal cavity, which proves that the gravity of the prognosis in sclerosis does not depend on the quantity of the ascites found. What is of the greatest importance in making a prognosis in a case of liver disease is the state of the hepatic cells, just as in heart disease it is the condition of the myocardium that is to be considered.

This woman had rapidly lost considerable flesh for the past three weeks, she had constantly been in a somnolent state, and she had not been able to take food on account of frequent efforts at vomiting. The urine had been small in quantity, and was highly charged with urates; her temperature fell to 96.4°, and her tongue was dry. What is the signification of such symptoms? They meant that she had entered the period of hepatic insufficiency, by which I mean the suppression of the function of the hepatic cells. This I told you last week meant death in a short time if it was not relieved, and in point of fact, in less than a week after I showed you the case she died, first of all presenting incontinence of urine and fæces, then great thirst, cold sweats, and rapid emaciation. The autopsy confirmed our diagnosis.

As insufficiency in such cases corresponds to a loss of, or at least a suppression of, the functions of the hepatic cells, I must, before going further, call your attention to the fact that the functions of these cells are many and diverse. First of all, if urea is formed all over the organism, still its principal focus of production is in the liver: from this fact arises the necessity of an exact knowledge of the quantity of urea eliminated in all urine that you

examine. Urea has been called "the physiological diuretic," and we should therefore study thoroughly the urea-secreting function of the liver. This great organ is also the place where the elaboration and transformation of organic pigment take place, so that if we find urobilin in the urine we may know that the liver is out of order. This I call "the chromogenetic" function of the organ. You are all familiar with the "glucogenetic" function of the liver and its property of arresting and neutralizing the toxic products of digestion. You are also aware of my method of finding out if this function is in good working order or not. I simply introduce into the stomach one hundred and fifty to two hundred grammes of sugar. In the normal state of the liver this should easily be destroyed in a few hours, but when the hepatic cells are no longer able to perform their work, traces of the sugar will be found in the urine in from two to four hours afterwards by the usual chemical tests. Once let the hepatic barrier be broken down, the toxines enter the system and accumulate in the blood. Sometimes, however, the kidneys act as a compensating organ and eliminate the poisons that the liver no longer destroys. This will explain to you why the urine becomes so very poisonous during the compensating period of hepatic insufficiency. This overloading of the urine is really one of the best safeguards of the organism for removing the elements poisonous to the body.

According to the newer ideas in regard to liver disease of this nature, medication should be directed to both the hepatic organ and to the kidneys. As I often say to you, "The kidney must be open and the liver closed." The kidney must be free to eliminate the poisons, and the liver shut, so that it can arrest them or overcome their influence for bad. When one or the other or both of these are out of order, a poisoning of the body takes place, under the influence of which the patient will die unless means are found to give these organs relief.

Hepatic insufficiency is much more common than one would think, as it is found in company with a large number of infectious diseases, especially typhoid fever. If you do not notice it so often here it is because its characters, in the symptomatology of the causal affection, are lost, yet it will often make rapid strides, owing to the fact that both the liver and kidneys are involved in typhoid fever. In certain cases of heart disease, also, some patients "die by the liver," with symptoms of jaundice, etc. All the liver diseases, such as cancer, cysts, sclerosis, may promptly end their course by this insufficiency of the organ. It is the same in certain visceral cancers: although they may be extra-hepatic at first, they will ultimately cause degeneration of the liver. Sometimes these cases terminate quickly with acute coma or cachexia, and the Germans attribute this sudden ending of the malady to the toxines that are secreted by the cancer itself, but I think that it is owing to the insufficiency of the liver.

M. Weber, one of my interns, has reported some cases of liver trouble that succumbed in less than two weeks with a galloping cachexia that nothing in the symptoms of the patients gave him any idea of nor time to

act against. I think that it will be useless for me to enumerate the symptoms of insufficiency of the liver, but I may be permitted to add to those that you have already seen in these patients the possible existence of hæmoptysis, hæmatemesis, or purpura, etc. You should also know that the symptoms are not always so severe as they were in those cases you have seen here. They may manifest themselves only by some obscure signs, such as somnolency, with a smaller quantity of urine than usual and a dryness of the tongue.

We must consider two periods of this trouble, according to whether the kidneys are affected or not. As long as they remain permeable the poisons that have not been destroyed in the liver pass out of the body with the urine, which becomes poisonous in character. This period we may call "simple hepatic insufficiency," and the hypertoxic urine will be a safeguard to the patient; but this has its limits and its dangers, for all these organic poisons finish by irritating the parenchyma of the kidneys, and cause organic inflammation when the urine will be charged with albumin. This is the second period, or period of "renal hepatic insufficiency," and much the worst period for the patient, for he may now be carried off by uræmia.

As to treatment, you will now be able to understand the importance of the three great therapeutical indications I shall lay down for you in this malady:

1. Favor the glucogenetic function of the liver by hepatic medication.
2. Favor the renal function.
3. Stop all sources of poisoning, and above all the intestinal one, by proper medication.

Milk-treatment will fulfil the first two indications. It has been shown that milk attenuates the urinary poison. It also contains the sugar that transforms itself into glycogen in the liver, and it is useful to the kidney because it is diuretic.

But you must feed these patients carefully, or they will lose the glucogenic function. For the third indication you should practise intestinal medication by the modern methods that you see us use so often. Besides the drugs used, suppress all the alkaloids and anything containing the salts of potash, as they are toxic to the human organism. Replace iodide of potassium by the sodium salt, and acetate of potassium by acetate of sodium. Remember, also, that the potash salts are not tolerated by the stomach in these liver troubles. Remove from the food all things that contain potash, such as meats, soups, etc. (milk contains very little potash). Prohibit the use of all fatty and saccharine foods. Then, during the last period, you have the agents I have so often recommended to you for adynamic states, —viz., hypodermic injections of caffein, camphor, ether, or phosphate of sodium.

Do not forget this possible complication—hepatic insufficiency—in all severe maladies, and the fact that the kidneys are the compensating organs, so that you should direct your medication and all your efforts to their

assistance. I may, indeed, formulate this as a principle in general therapeutics: "When you can do nothing more with an organ whose functions have been suppressed by profound lesions, search for the compensating organ and work upon it." In this way you will do much good in diseases of the liver, but don't neglect to practise intestinal antiseptic medication while favoring renal elimination.

TORTICOLLIS AND NODDING SPASM.

CLINICAL LECTURE DELIVERED AT RUSH MEDICAL COLLEGE.

BY HENRY M. LYMAN, A.M., M.D.,

Professor of the Principles and Practice of Medicine, Rush Medical College, Chicago.

GENTLEMEN,—The first patient I present to you this morning is forty-two years of age, a carpenter by occupation. Last December he had an attack of influenza, but before that time he enjoyed good health. He is suffering at present from an abnormal contraction of the muscles, and his failure of health dates back to a year ago last December when he had the influenza, that attack being followed by the commencement of this difficulty. He did a good deal of out-door work and was consequently exposed to the weather during the winter. While he remained in-doors last winter his head became a little uneasy, especially at night, and it was usually some time before he could fall asleep. During the day he would experience nothing in particular. In March he began to work again, exposing himself to the weather. His head was drawn over towards the shoulder and began to jerk. During the latter part of June the right side of the head was painful, as if the muscles were stretched too much, which caused him to let his head rest on his shoulder all the time. The patient says he has no difficulty in getting sleep. He generally goes to sleep at about ten in the evening, and sleeps well until five in the morning, but as soon as he wakes the clonic spasm begins. This spasm has not affected his general health, as his arms, legs, and hands are in good condition. The tongue does not jerk. He says he has had pain over the left eye, but has had none since the jerking commenced. Eyesight is good. With the support of a cushion behind his neck he manages to be comfortable.

Here we have an excellent illustration of muscular spasm. There are various terms applied to it. It is usually called *convulsive tic.* The spasm by which the head is drawn over to one side is not an unfamiliar incident, constituting one of the forms of torticollis in which there is spasm of various muscles about the neck. Sometimes there is a spasm of the sterno-cleido-mastoid muscle of one side. The head is then drawn around towards the op-

posite side. If, as is so frequently the case, the trapezius muscle is involved in the spasm, the head is drawn downward towards the shoulder, as this patient was affected at first. He had spasms of the sterno-cleido-mastoid and trapezius muscles, and the deeper muscles in the side of the neck were also involved. After a time these muscles ceased to be affected, but the muscles in the back of the neck were involved so that the head was being jerked continually backward. If both trapezius muscles and the posterior deep muscles that lie in the groove alongside of the process of the cervical spine are involved in spasms, the head is drawn backward. There is a great variety of positions the head may assume in consequence of spasm of different muscles in the neck. The peculiar feature of this case is that the spasm now present is not tonic but clonic. You are all familiar with the difference between a tonic spasm and clonic spasm. A tonic spasm is one in which the muscle is continuously contracted, and in which the patient lays his head upon his shoulder for hours together, as this man did when first attacked. There was then a tonic spasm of the lateral muscles in the neck. Now, you see, the muscles do not remain persistently contracted, but they contract and relax. The contractions follow one another in rapid succession with intermittent relaxations, constituting what is known as clonic spasm. It may involve a single muscle or many muscles at the same time; producing what is described as *myoclonus*, a term that has been invented to describe the condition in which muscles contract and relax alternately, the spasm and relaxation following one another rapidly. These myoclonic conditions are met with in different parts of the body, and their duration is variable. There is a great variety of spasms that may be witnessed in patients who suffer in this way. We sometimes see it in children who have nodding spasms. There is sometimes contraction or relaxation of the spinal muscles also, so that the head executes wider movements. I remember a child that, sitting in its high chair, kept knocking its forehead thus against the table. You will sometimes see spasmodic contractions of the muscles of the arm. An idiotic patient was presented before the class some time ago in which there was a spasm involving the muscles of the arm, and with this peculiarity, that the spasm always produced a blow on the forehead. The patient every few seconds would strike himself a blow on the forehead with the fist, or with the palm of the hand. So the variety of movements that may be thus produced is very great. Sometimes spasms occur, as they do here, continually, all day long; in other cases you will see patients attacked with only occasional spasms, at intervals during the day.

A man came to my office not long ago with spasm involving one masseter muscle of the jaw and the pterygoid muscles, so that his jaws every ten minutes would be thrown to one side or jerked together, producing distortion. You see a similar movement in this patient in lesser degree. There is a tendency on the part of one of the pterygoid muscles to contract, causing a lateral displacement of the jaw towards the left side.

There is one thing to which I wish to call your attention in connection

with this case,—that is, the resemblance which it bears to chorea in the fact that the patient is perfectly quiet when asleep, but so soon as he wakes up the movements are renewed, and continue during his waking hours. There is a point of resemblance between this form of spasm and the peculiar movements of chorea. It seems strange that it should be so, and it is evidence that the nerve centres are in a different condition when asleep from what they are in when waking. We are so familiar with this that we do not think of it and do not give it the prominence which it deserves. When a patient is asleep he lies quiet and motionless, yet he is capable of movement. He turns over in bed at intervals, and is capable of changing his position. He continues to breathe, and the blood continues to circulate,—functions dependent upon the activity of the spinal cord and the medulla oblongata. Such movements are dependent upon the spinal axis; naturally, then, if the cord is asleep, movements dependent upon it would be likely to become moderated or arrested. Not only does the cord sleep, but the brain also. It is owing to a diminished activity on the part of the brain that we cease to be conscious in sleep. The movements of the patient, if the sleep of the brain is sufficiently profound, would therefore be arrested. When the brain has its activities reduced to the point which admits of sleep, those movements that depend upon the activity of the brain also cease. That is always observed in chorea; and the similar cessation of spasm in sleep in this case marks a relationship between this disease and chorea.

Now we find that chorea is a disease that is very often associated with rheumatism to such a degree that some authors regard it as a form of rheumatism involving the brain and the nervous system generally. It is true that the disease occurs among children as a general thing, and children are very liable to have rheumatism that does not involve the joints or the external tissues of the body. Grown people are more apt to have articular forms of rheumatism, while children have forms of rheumatism that do not involve the joints. Rheumatic disease of the nervous system is not an uncommon event in children, and it may involve the brain. It seems to be a cause of chorea, although chorea is not always dependent upon clearly rheumatic antecedents.

The patient of whom I spoke a little while ago, suffering with paroxysmal spasms of the masseter and pterygoid muscles, was a rheumatic subject, and his rheumatism had assumed different forms. Sometimes it was articular, and sometimes muscular. The treatment that was addressed to rheumatism in his case relieved the spasm.

I will mention another case which came under my notice, and which throws a little light on this subject. A very intelligent physician described his own symptoms to me, saying that he had been subject at first to a great deal of tenderness and pain in the spinal region whenever he had driven far in the country, and this difficulty became gradually worse until the jolting of a carriage was painful to the spine. After a while, with that,

he would have peculiar spasmodic contractions of the muscles in different parts of his body, especially in the upper extremities, shaking of the hand and arm, so that he was tempted to think that there was a condition of multiple sclerosis in his nerve centres. This gradually ceased, however, but he was still suffering with tenderness about the spine. I asked him if he ever suffered with rheumatism, and he said yes. He had not thought about a rheumatic diathesis. It is a fact also of not uncommon observation, that persons who are rheumatic are more than others subject to spasmodic contraction of the muscles. A very familiar example of that is furnished by the minor fibrillary spasms that such persons experience when their stomachs get out of order. It is not uncommon for persons of an arthritic diathesis, especially those of a nervous temperament, to have twitching of muscular fibrils about the face, in the orbicular muscles of the eyelids, and the orbicular muscle of the mouth; the muscles that are connected with the corners of the mouth may be thrown also into a state of spasmodic contraction. Muscles in other parts of the body not infrequently are involved. Muscular twitchings will be observed, and the patient will speak of having experienced pain in different parts of the body. These spasms are dependent upon an increased irritability of the nerve centres and nervous structures of the body, so that it would seem as if there was a tendency in such patients to irregular discharges of nervous force that sometimes involve extensive territories. In others very limited territories are involved. That is a fact of common observation in arthritic cases.

Now then, bringing together these facts, we may perhaps get some light upon what affects this patient. Remember, in the first place, that about a year ago he had an attack of influenza. Influenza is an infective disease. It is a disease which is accompanied by extensive poisoning of the tissues, and in certain forms of the disease the nervous structures of the body are most severely affected by it. There are three principal varieties of influenza,—the ordinary catarrhal form of the disease, in which the patient has fever and a severe bronchial cough that last for several days, and then subside; another form, in which the abdominal mucous membranes are principally involved, and the patient has diarrhœa; this is so profuse and exhausting that it has been sometimes described as winter cholera; the third form is that in which the nervous system principally suffers.

It was observed during the last two or three years, when influenza was prevalent, that the number of patients who, after having had influenza, suffered with various forms of nervous disease was greatly increased. There was a notable increase in cases of insanity consequent upon previous attacks of influenza. There was a notable increase of various forms of nervous disorder not amounting to insanity, but assuming the form of neuralgia, of muscular spasm, or muscular paresis, if not complete paralysis; so that it was evident that the occurrence of influenza seemed to have a prejudicial effect upon the nervous organs of a great many persons who were predisposed to nervous disorder. This seems to be an example of such disorder,

and we may suppose that in this case the toxic effects of influenza upon the nerve centres have produced conditions that are analogous to the effects that are produced by the poison of rheumatism in many cases of chorea and other forms of rheumatic spasm. There is a point of relationship between these different disorders.

With regard to the treatment of such a disease as this, I must admit that it is not always satisfactory. Our treatment is rather unphilosophical and illogical in many cases, because we know comparatively so little about the exact state of affairs that underlies these various diseases. The patients do not die of an affection like this, consequently an opportunity for examining their organs after death is almost an unknown thing. We know but very little about the condition of the internal organs after such a disorder; consequently our treatment is largely tentative and experimental, and it is not likely to be as successful as we could desire. We must, however, considering the probable condition of the patient, endeavor to relieve him. In some cases it is likely that recovery never will take place. There are cases of mono-spasm that persist during life.

I remember the case of a man who came to this clinic many years ago, who had a continual spasmodic movement of his right arm. The right arm was continually moving and twitching,—what we would call chorea, involving only one extremity. He was a healthy, vigorous man, yet the right arm was not still excepting when asleep. As soon as he was asleep the arm was perfectly motionless until he awoke. I once saw him asleep. He was lying perfectly quiet, but when I touched him upon the shoulder and shook him lightly he awoke. You could see the lips moving, the eyes looking up, and the man a little dazed though perfectly motionless for a few seconds, but, as complete restoration of consciousness was effected, the arm began to move, and continued to move as long as he was awake. This movement of the arm persisted for years, but was at last partially remedied by stretching the nerves of the limb. It was not a complete success. The patient disappeared from view, and I do not know what was the outcome of his disorder. That case illustrates the obstinacy of these disorders, sometimes persisting for years. Let us hope that this case has not gone on for such a length of time that there cannot be something done to allay the difficulty. Our treatment must be twofold. In the first place, we must endeavor to repair the damage to the central nervous system that was produced by influenza. We must endeavor to accomplish this by such measures as will improve the nutrition of the nerve centres. We know that arsenic is a very potent drug to improve the nutrition of the nerve centres. I should advise a thorough course of arsenic for this patient, not because it has any power over the spasm, but because it has power to improve the nutrition of the nerve centres. Ordinarily we have to rely upon internal administration by the mouth, giving the patient three, four, five, six, seven, or ten drops of Fowler's solution, beginning first with a small dose and gradually increasing it. When the signs of arsenical influence become

manifest, it is well to reduce the dose, gradually rising and falling, giving as much as can be tolerated without irritating the stomach. Sometimes the stomach is irritated decidedly, and it is well in such cases to administer deodorized tincture of opium with arsenic. There is one disadvantage in carrying out this line of treatment, patients may become too fond of the opium treatment; so it is better in these cases to resort to the hypodermic injection of a perfectly neutral solution of the arseniate of sodium in ten drop doses daily. Once a day is sufficient. There is the advantage that it can be given in one dose in twenty-four hours; it does not irritate the stomach. If the solution is perfectly neutral it will not irritate the tissues where it is injected. Along with arsenic may, with advantage, be given cod-liver oil for the purpose of nourishing the nerve-tissues, and a very nutritious and wholesome diet must be administered. General rules of wholesome eating and drinking, with attention to the bowels, must be observed. For the relief of the spasm we must have recourse to those drugs that have a direct influence upon the nervous system, and especially to that class of drugs that are antispasmodic in their character.

One of the most valuable remedies in the treatment of spasm generally is belladonna. This we may give in the form of the fluid extract, which is probably the safest and best way for it to be prescribed where the patient has to take his own medicine. It is well to begin with moderate doses, and to increase until the physiological action of the drug is obtained. You should begin with two-drop doses of the fluid extract of belladonna, three times a day, increase the next day to four drops, and, if there is no physiological effect, then to five drops; increase the dose until there is dilatation of the pupils or until the patient says he cannot read print easily, or there is dryness in the throat. Then you may recede two or three drops so as not to produce an unpleasant effect. Hold the patient several weeks under the influence of the drug, diminish it gradually, then increase it again if the spasm persists. In that way the spasmodic action is often very favorably influenced.

Along with it in many instances it is advisable to administer chloral hydrate in ten-grain doses, three or four times a day. But this must not be administered too long, for fear of producing the chloral habit. Along with these measures a certain amount of gymnastics is desirable. If the muscles are growing weaker from disuse it is advisable to apply electricity. The faradic current should be applied to these muscles. Sometimes there is a palpable wasting of one of the sterno-cleido-mastoid muscles or one of the trapezius muscles, or the deeper muscles of the neck. Sometimes you may employ the galvanic current in the form of general galvanization, one pole (the positive) being applied between the shoulders, and the negative pole upon the back of the neck, for three or five minutes every day. Stretching the muscles of the neck may be accomplished by Charcot's method, by the Sayre apparatus, or by the inclined plane devised by the late Dr. Stillman, all of which have been described to you on previous occasions.

A very good rule is to apply electricity to the affected muscles or nerves one day, the next day to make suspension or traction on the inclined plane. I shall advise the pursuance of these methods in this case.

HIP-JOINT DISEASE.

CLINICAL LECTURE DELIVERED AT THE NEW YORK POLYCLINIC.

BY V. P. GIBNEY, M.D.,

Professor of Orthopædic Surgery, New York Polyclinic; Surgeon-in-Chief to the Hospital for the Ruptured and Crippled, New York.

GENTLEMEN,—From what one hears and reads, one might be led erroneously to think that this or that splint will cure hip-disease at any time. There is also much confusion regarding the term "hip-disease," so that the first requisite to intelligent understanding of the subject is a definition.

The synonymes of morbus coxarius are tuberculosis of the hip, hip-joint disease, hip-disease, tuberculosis of the hip-joint, and ostitis of the hip. The last is to be preferred, as it indicates inflammation of the bone, not of the capsular ligament, the ligamentum teres, synovial membrane, or soft parts. In the large majority of cases the changes of joint-disease begin in the bone itself, in the centres of development, the epiphysis, or on the distal side of the epiphyseal line. Here the bacilli lodge and form colonies. They gain access through the blood from tuberculous glands, perhaps, after they have been quiescent for many years. The theory of the traumatic origin of hip-disease is unsatisfactory. If you put yourself into the position of an attorney examining a witness and cross-examine your patients, you will find that in nine-tenths of them the fall had nothing to do with the disease. The child is brought to you with this story: She has been walking lame for some months; she has been favoring the limb, and the mother remembers that she had a fall. The history of the fall is there, but further questioning will elicit the fact that the child was walking lame before the fall. I was myself amazed, at first, at the fallacy of this theory of the traumatic origin of bone-disease. I would, in any case, avoid referring the injury to the fall itself. If you accept the history, the mother tells the father when he comes home that the trouble came from the fall, and the father thinks that the mother has been careless, or that the maid has been negligent, and he at once discharges her. If the theory were true, this might be all right, but it is not. The only satisfactory theory is that of tuberculosis. Even where you are in doubt, it is better to call it tuberculosis; for to be forewarned is to be forearmed. It does not mean the use of a splint for a few months with cod-liver oil.

We believe that the focus of disease here is chronic, just as it is in the lung, or in the lymphatic glands; but it possesses an advantage over foci in these latter, in that we may lock up the hip, the knee, the ankle, or the spine. Sometimes nature resorts to the same method of cure by binding down the lungs by pleuritic adhesions. The best way to treat tuberculosis is to give rest to the part and to protect it against traumatism. Now, the fall, which is usually considered to be the starting-point of the disease, really follows the limp. The introduction of the bacilli into a tuberculous focus about the joint causes inflammation, with irritation of the nerves, and this in time gives rise to pain in the knee and an unsteady gait. The child falls and bruises the part; the hyperæmia is increased, and the joint becomes vulnerable. The irritation being reflected from the spinal marrow into the obturator branch, we have reflex spasms of the muscles and night-cries. Hip-disease is really tuberculosis of the centres of the epiphysis or acetabulum. I prefer the term ostitis of the hip, for then people know what we mean.

As complications we have periarthritis, periostitis of the shaft, iliac abscess, and later on in life neuroses of the hip, the irritation of the spine reflected to the nerves which go to the muscles of the hip. Tuberculous ostitis of the hip is a serious matter from the beginning, and it needs, from the beginning, protection from trauma and injury.

You may ask, why do not more children suffer from hip-disease with so many germs floating around? I answer, because the individual may not be susceptible,—the part may not be vulnerable. Heredity may cause this susceptibility, or a tardy convalescence from scarlet fever, for example, may impair development and induce a diathesis like that of heredity. The term struma or scrofula is not needed; there may be no taint in any member of the family; there may be no specific, rheumatic, or hereditary tubercular element in the case. In this acquired diathesis, the bacilli are inhaled with the dust of the room, roadway, or cars; they are found in the room where consumptives have lived or died, especially on the wall and floor. When dry, they float in the air. The child may inhale, so to speak, only a small dose, and the germs may become harmless and in time be thrown off; but where we have the diathesis present, a small dose is sufficient to start the work of destruction. In our treatment we must not forget this question of elimination, for in a high altitude the bacilli do not thrive, and these do comparatively little harm.

Let us now examine this child. As it walks you notice it limps, favoring one hip. The parents do not want to think him lame; but ask some one else, and you will find that he is not at any time free from a little halt which may have existed for weeks or months. He also has night-screams, for which there seems to be no cause. The child is found again asleep, or he may be awake, or moaning, or grasping the side of the crib. It is because the muscles about the diseased joint are off guard, and there has been a reflex spasm and a start. Later on the child may cry all through the

night. In the morning he gets "limbered up" after a while. One patient takes several hours to get "limbered up." My friend, Dr. Shaffer, has seen cases which, at intervals, are free from the limp. No rule is without exceptions, but I am myself unable to put my finger upon a single case in which the limp has been lost after its development.

You should adopt some routine method of examination, otherwise important diagnostic signs will be overlooked. Having stripped the patient, you find the ilio-femoral crease lower and shorter on the affected side, and a dimple or flatness where fulness should be. A glance at the limb tells us that it is smaller than its fellow. The patient is now placed upon his back to test its functions, and the spinal column is moved by taking the two limbs in the hand. Having ascertained by palpation the presence or absence of tenderness in the iliac fossa, you next measure from the anterior superior spinous process of the ilium to the lower border of the inner malleolus, and from the umbilicus, to obtain the practical shortening. Then after finding the circumference of the limb, you are prepared to test its functions. First, take the sound limb and flex it as far as you can; extend it, abduct, adduct, and rotate it. Then take the other limb. Here, in this patient, we find resistance to flexion while abduction and adduction are almost perfect. With a hand against the outer side of the thigh as a fulcrum, make a lever of the femur. If there is disease of the head of the bone, there will be a cavity and a thin shell between the articular surface and the cavity. In this case it is rough and is breaking down, and there is pus in the joint. There is also muscular resistance. Handle the joint gently; don't hammer the foot or the knee. If the psoas muscle resists extension, it indicates incipient Pott's disease. There may be no defined disease, but simply a little spasm. If the limb is held fixed in abduction we have inflammation, probably extending into the gluteal region.

This boy is six years old, and began to be lame six weeks ago. He has pain about the knee and gives a history of a fall. He has one brother who is being treated for Pott's disease, and another for disease of the elbow-joint. We cannot flex this limb quite as far, nor abduct it quite as far as that of the other side. The diagnosis was made in this case after two or three visits, and he has worn his splint for three or four weeks.

This next patient is eight years of age. When she came in on July 27, she stated that she had been ailing one month. Examination showed the hip acutely inflamed and very tender. She was put to bed and traction was made in the line of the deformity, a sand-bag weighing five to ten pounds being used. The inclined plane on which the limb rested was gradually lowered during the seven weeks she was in bed. The tenderness has subsided, and we have the limb down to a straight line. She is wearing now a short Thomas splint with traction in a straight line. It has a chest girdle three-quarters of the way up, which is held to the trochanter by a perineal band. It acts as a perineal crutch. The child sits upon the perineal strap. The foot is attached with strips of adhesive plaster, and we

anchor the thigh and knee to the stem by a knee-band. The splint is called, for purposes of convenience, the "Polyclinic splint."

Here is a case of longer standing. It was examined under ether, and the tubercular tissue scraped out. The abscess healed one year ago. The splint was designed only for extension and the deformity recurred. He now wears a short Thomas splint and an ordinary traction splint, and is again in good condition. "Time was made for slaves" is pertinent in joint- or bone-disease, hence you must work regardless of time. This patient also had a tuberculous testis. After the curetting the abscess healed, and he now has a pretty straight limb. Measurement from the anterior superior spine to the tuberosity of the ischium shows that he is all right. He is saved from a pathological dislocation. The laity believe that an abscess which has been opened never heals, but we see here that it does.

We have, then, in hip-disease three stages: 1. The first stage, or the stage of lameness simply, which precedes deformity. 2. The second stage, or the stage of deformity without any shortening. 3. The third stage, or the stage of shortening and deformity, with or without abscess, that goes on to recovery with ankylosis, sometimes to amyloid degeneration of the liver and kidneys, extensive suppuration, etc. Our duty is to prevent deformity, minimize the shortening, and put the patient in a condition by which he can be out of doors and get the best possible result.

CARDIAC MURMURS; HYPERTROPHY WITH DILATATION.

CLINICAL LECTURE DELIVERED AT THE BUFFALO GENERAL HOSPITAL.

BY CHARLES CARY, M.D.,

Professor of Materia Medica, Therapeutics, and Clinical Medicine in the University of Buffalo, etc.

This patient, a German, aged sixty-three, was admitted six days ago. The previous history is negative. He has enjoyed good health till within the past few months. About two months ago, while engaged in his work of tanning hides, he became suddenly dizzy and had considerable impairment of vision. He has had backache ever since. Two weeks ago an eruption appeared on his legs, and they have at present a shining appearance. Not to describe in detail the examination to which he has been subjected, we find that he has a marked enlargement of the heart, the apex-beat being about four inches below the left nipple, and that there are murmurs at both base and apex. The urinalysis is as follows: "Reaction neutral; s. g. 1028; albumin present; no sugar; no sediment." Albumin was also found at a second examination, when the specific gravity was 1018.

The patient says that he has worked in a tannery for thirty years and, although his occupation is one that necessitates exposure to damp, he has never had rheumatism. His dizziness has never been so great as to cause him to fall. For a year it has been hard for him to go up-stairs, and he says, "It kicks here," indicating the epigastrium. This man, therefore, gives a history of having developed very gradually an inability for violent exertion. He had to abandon his work five or six months ago, but it is surprising that he has suffered so little from what we find to be a very advanced and complicated cardiac lesion. Its progress must have been rapid in the last few months.

We will examine the patient more in detail in the ward-class, but I will indicate to you now the cardiac lesions. You will notice that the apex-beat is very low, but in an area two inches in diameter you can see a movement of the chest-wall with each heart-beat. On percussion I find the heart to be much enlarged. Dulness ceases at the left border of the sternum, but we must remember that unless the heart comes immediately in contact with the chest-wall or with very little intervening lung-tissue, we cannot map out the inner border as well as we can the outer. Dulness extends outward to the mid-axillary line, showing an enormous enlargement of the heart. Upon auscultation I hear double murmurs with both systole and diastole. The heart is pumping too rapidly now to allow me to make these murmurs out clearly, but when the patient is in bed they can be distinctly differentiated as mitral obstructive or direct, mitral regurgitant, aortic obstructive and aortic regurgitant. As a result of these extensive valvular lesions he has a great deal of cardiac enlargement, which is in a measure compensatory hypertrophy; but there is also much dilatation with it, as indicated by the general enfeeblement of the heart-power.

In the lower extremities you will see the evidences of destructive œdema. The patient's legs are not very large now, but when he entered the hospital they were enormously swollen and would pit considerably on pressure, while the skin was so distended that its nutrition was interfered with, so that it has become scaly and thickened. There has been no abdominal dropsy.

I want just to touch upon the plan of treatment in this case. The patient is kept in bed with a twofold object,—first, to throw as little work on the heart as possible, and, secondly, to enable the return circulation from the legs to be better carried on and thus to improve the nutrition in them. He was given mild doses of potassium iodide in conjunction with digitalis. The potassium iodide was given as a capillary dilator and also to promote the removal by absorption of the thickening in the lower extremities and, theoretically at least, to aid the removal of a portion of the thickening about the cardiac valves. The digitalis was given to spur on the heart and also to increase the renal secretion. There remained no subjective symptoms to treat, for placing the patient in bed removed his dizziness and sense of fatigue. He complains now only of the condition of the feet and legs.

This man's working-days are over: a man of his age is entitled to a life

of ease. By giving his heart a rest the dilatation will diminish to some extent. In acute infectious diseases, for example, there is a certain amount of cardiac dilatation which is recovered from during convalescence, and even when the dilatation is due to valvular lesion, rest in bed and improvement of the circulation (and therefore of the nutrition of the heart) will diminish to some extent the physical defect which is permanent. This patient will probably recover sufficiently to leave the hospital, and he may remain in comfort for years if he is able to lead an easy life. At the same time it will not be surprising if he is carried off suddenly by some exacerbation of his trouble. Aneurism, and especially cerebral aneurism, is a not infrequent complication of such cardiac disease, and the possible evil results of cerebral aneurism have been described to you in connection with the first case which was shown you this morning.

REVIEW OF MEDICINE.

MEDICINE.

IN CHARGE OF JOSEPH P. TUNIS, A.B., M.D.,

Assistant Demonstrator of Surgery in the University of Pennsylvania; Surgeon to the Dispensaries of the Presbyterian and of the Methodist Episcopal Hospitals; Visiting Physician to the Children's Dispensary of St. Clement's Hospital and to the Church Home at Angora, Philadelphia.

Suppurative Pylephlebitis and Hepatic Abscess Secondary to Appendicitis. (*Medical News*, April 15, 1893.) By George Erety Shoemaker, A.M., M.D.

Suppurative pylephlebitis with hepatic abscess is so unusual during life, and frequently so obscure a condition before death, that it is often overlooked, and has therefore received but little attention among clinicians. Two cases have recently occurred in the practice of the writer of more than usual interest, which he details at some length. In one case it is probable that the pin found post-mortem in the appendix was the original cause of the trouble, and that it had, by piercing the wall of the appendix and the adjacent peritoneum, infected the underlying connective tissue and veins. These veins belong to the portal system, and reach the liver directly. The poison may have been carried from the site of perforation through the liver, and there formed the abscess, which was large and single.

The second case was one of gangrene of the appendix, followed by acute suppurative inflammation of the veins belonging to the portal system, with multiple liver-abscesses. From a diagnostic point of view this case became most interesting after the liver-symptoms had developed. In recognizing the condition of such a case the following points will be of value:

1. The presence of an affection such as perityphlitis, or a purulent focus somewhere, which may act as the starting-point of the disease.

2. Pain in the epigastrium, above the umbilicus, or in the right hypochondrium.

3. Violent chills, which are repeated at irregular intervals, and are followed by great heat and profuse sweats, while the temperature in the intermission remains abnormally high.

4. The recent, uniform, and painful enlargement of the liver.

5. Considerable enlargement of the spleen.

6. Changes in the skin and the color of the urine, in addition to the biliary diarrhœa.

7. Rapid emaciation in the body and anæmia.

8. The occasional development of diffuse peritonitis and typhoid symptoms in the latest stages of the disease.

Cylindroids in the Urine and their Significance. (*Medical News*, July 15, 1893.) By Alfred Stengel, M.D.

After a minute description of the various forms of cylindroids, illustrated by a number of drawings, from a mere shred to a cylinder closely resembling a true cast, the writer concludes:

If we could learn to feel that casts after all are not always an indication of serious renal mischief (as they undoubtedly occur in cases of transient renal congestion, icterus, and other conditions), it would be less necessary to retain the special name, "cylindroids." As far as the form of cylindroid that is almost or quite indistinguishable from ordinary casts is concerned, it is manifest from what has been said that there may be a regular succession of forms, from the marked and distinctive filamentous cylindroids up to such as are in reality true casts; but when the latter occur singly or in small number amidst numerous distinctive cylindroids, one cannot but view them with a considerable degree of composure. On the other hand, when hyaline casts appear in the urine in some number, without cylindroids, it would appear that the congestion or irritation producing them had been from the first more severe than such as ordinarily gives rise to cylindroids.

My conclusion is that cylindroids are formed in the renal tubules as a result of moderate renal congestion or irritation, that they may occur in albuminous or non-albuminous urine, and that they may be of such appearance as to be almost indistinguishable from ordinary casts, or may even be transformed into such.

The Administration of Milk by Accurate Dosage. (*Food*, New York, May, 1893.) By Thomas G. Morton, M.D.

Patients frequently declare that they cannot take milk. The difficulty, however, is not with the milk, if due care is exercised to obtain a pure article, but is due to the uncertain method of its administration. Very few patients

can commence abruptly and take two or more quarts per day, as such quantities are likely to upset the stomach.

The writer has had prepared a graduated glass for the administration of milk, indicating the number of tablespoonfuls from one to twenty, as well as the hours for taking the milk in the morning, afternoon, and evening, which he calls a "milk-tumbler." Such a tumbler is a great convenience for use in private as well as in attendance on "rest-cure" cases.

The writer has seen very good results follow the proper administration of milk in cases of great irritability of the stomach, chronic dyspeptics, and the like. By commencing at seven o'clock in the morning and stopping at ten o'clock at night we have eleven times for giving the milk, so that the quantity of milk daily taken can easily be reckoned.

Sometimes it is well, in commencing the milk course, to allow the patient three simple, easily-digested meals of selected articles a day, in conjunction with small but gradually-increasing doses of milk. As the quantity taken reaches two or more quarts daily it is well to omit one or more of the meals, until the absolute milk diet is finally obtained.

When milk is given with a view to affording the digestive organs absolute rest, then milk only should be permitted for at least five weeks, or longer, according to the case and the character of the symptoms. Even after recovery it is always well to recommend the patient to take at least a quart of milk daily for an indefinite time. In the great majority of cases the milk will prove very grateful to the patient subsequent to undergoing this treatment.

THERAPEUTICS.

IN CHARGE OF ALEXANDER D. BLACKADER, B.A., M.D.,
Professor of Therapeutics, McGill University, Montreal, Canada.

ASSISTED BY
D. I. EVANS, M.D.

The Subcutaneous and Rectal Administration of certain Purgatives. (*Charité Annalen*, 1892, t. xvii.) By Dr. G. Kohlestock.

At this hospital, in the service of Professor Senator, experiments have been made to ascertain the results of the subcutaneous and rectal administration of aloin, cathartinic acid, and colocynthine. Even when cocaine was associated, the subcutaneous injection was found to be so painful that the patients refused absolutely to undergo the operation. The rectal administration, however, afforded good results. A rectal injection of six to eight grains of aloin suspended in glycerin produced one and often several free evacuations. Cathartinic acid, in a dose of ten grains, administered in the same way, gave equally good results. In cases of very obstinate constipation, colocynthine, in doses of half a grain, injected into the rectum, induced

a prompt evacuation. Generally the purgative action was manifested within twenty minutes after injection. It did not appear to be necessary to increase the dose after prolonged use, neither was there any constipation as an after effect.

The Present State of the Treatment of Epilepsy. (*Bulletin Gén. de Thérap.*, June 30, 1893.) By Professor Eulenberg.

In this paper the author, speaking of the several modes of treatment, gives the first place to the bromides. After recounting the various bromide preparations which have been introduced, he states that the chief reliance must still be placed on the salts of potassium, sodium, and ammonium. With the view of decreasing the inconveniences of a prolonged course of the potassium salt, which he thinks most valuable, and also of increasing the actual amount of bromine exhibited, he prescribes these three salts conjointly. This combination, he thinks, gives results superior to those obtained by the administration of any of the salts singly. A daily dose of from five to ten grammes (seventy-five to one hundred and fifty grains) is necessary, and this quantity may be administered in two or three doses. The writer prefers the plan of two doses—a morning and an evening one—*per diem* in those cases where there are no nocturnal attacks. In cases where the attacks are exclusively nocturnal, he advises giving the bromide in one dose at a late hour in the evening.

This treatment should be carried out for at least two or three years after the last convulsive attack, without any interruption during a menstrual epoch, or pregnancy, or even, if possible, during an intercurrent illness. He considers that about five per cent. of epileptics are unable to take bromides. We must then have recourse to other anti-epileptic remedies. The preparations of zinc, copper, bismuth, silver, etc., for this purpose have justly fallen into desuetude. Arsenic is sometimes valuable, and Professor Eulenberg recommends the alternative use of bromide of iron and granules of arsenic. In the vegetable kingdom the only drug which gives any satisfactory result is belladonna, particularly atropine, but unfortunately its employment cannot be sufficiently prolonged. Very lately a certain number of new remedies have been recommended, as hydrate of amylene, antifebrin, antipyrin, borax, nitro-glycerin, and, still more recently, the injection of a solution prepared from nervous tissues.

The Therapeutic Action of Sulphonal. (*Arch. f. Exp. Pathol. und Pharmacologie*, t. xxxi. fasc. 1, in *Bulletin Gén. de Thérap.*, June 30, 1893.) By A. Kast.

In this paper M. Kast, who first introduced sulphonal, gives us the conclusions he has drawn after examining two hundred recent reports on the action of the drug. All accord to it valuable somnifacient effects in the insomnia of pyrexia and of psychic disorder, and especially in the insomnia of neurasthenia. In doses not larger than thirty grains for a man, and

fifteen grains for a woman, sulphonal appears to give rise to no unpleasant symptoms. In larger doses it may occasion vomiting, diarrhœa, followed by obstinate constipation, ataxic symptoms, with pains in the lower limbs, ptosis, with a sense of weight in the head, retention and even suppression of urine, with very rarely albuminuria and hæmaturia. These toxic symptoms are attributed by M. Kast not to sulpho-ethylic acid, an occasional impurity, but directly to the action of the drug itself, when administered in too large doses. He advises that when necessary to continue the use of a hypnotic for any length of time occasional interruptions in its exhibition for several days should be made to prevent any cumulative action, and that on the appearance of any untoward effects, such as vomiting or gastralgia, its administration should be at once stopped for the time being.

The Elimination of Morphia by the Saliva. (*L'Union Médicale*, March 23, 1893.) By Dr. Julius Rosenthal.

The writer recently instituted a series of experiments on the elimination of morphia by the salivary glands after the drug had been administered hypodermically. He found that the reaction of morphia could always be obtained, even when the amount injected had been very small. The reaction was obtainable for several days. The writer considers that the amount eliminated by the salivary glands is considerable, but has no connection with the similar function exercised by the glands of the stomach.

Ice in the Treatment of Acute Pneumonia. (*The Medical News*, June 24, 1893.) By Thomas J. Mays, M.D.

This mode of treating pneumonia has been advocated by the writer in two previous papers. Since writing them he has instituted a collective investigation by circulars sent to various members of the profession, and obtained reports of fifty cases. On these, as reported, he makes the following comments: 1. The resolving power of ice on the exudation is a marked feature in its therapeutic action. This he attributes to the action of the cold contracting the smaller arteries and minute capillaries. He quotes Dr. Lees, who says that in many cases he noticed a striking arrest in the development of the physical signs. 2. This mode of treatment exerts a very beneficial influence on some of the more important symptoms in pneumonia: the pain, the dyspnœa, the cough, the character of the expectoration, and the temperature are all altered for the better. 3. This treatment does not appear to be followed by any evil consequences. 4. It may be used at all ages, from early infancy to old age. 5. The mortality-rate is greatly lowered. In the fifty cases quoted only two were fatal, and these were exceedingly unpromising from antecedent conditions. In another set of cases referred to, out of one hundred and six cases treated by ice applications only three deaths occurred. This is an unusually low death-rate.

The Revival of Tuberculin.—In a recent editorial the *New York Medical Record* (June 10, 1893) refers to some facts lately given regarding

the use of tuberculin. At the last meeting of the American Climatological Association Dr. Carl von Ruch reported twenty-five cases treated by this agent, and Dr. Hance, of Saranac Lake, twelve cases treated by Tindeau's modification. Taking these two sets of cases together, we find that in ten incipient cases cure was effected in nine, and great improvement in one. Among twelve advanced cases ten were cured, one improved, and one lost sight of. These are certainly very satisfactory results, and better than those obtained by ordinary modes of treatment; but it must be remembered that the patients were selected and had the benefit of being in particularly good surroundings.

We notice, also, that in Japan Dr. Kitasato is reported as obtaining excellent results from a modification of tuberculin, and in the journal of the American Medical Association (June 3, 1893) Dr. Charles Denison, of Denver, used tuberculin as a means of diagnosis in a case of suspected tubercular meningitis with headache of many months' duration. Distinct and diagnostic reaction set in, and as it passed away the patient began to lose the persistent cephalagia. After several injections the patient's improvement was exceptionally rapid.

NEUROLOGY.

IN CHARGE OF CHARLES W. BURR, M.D.,

Pathologist to the State Asylum for the Insane, Norristown; Visiting Physician to the Home for Incurables; Visiting Physician to St. Joseph's Hospital, Philadelphia, Pa.

A Few Clinical Notes on the Usual Situation of Spinal Hemorrhage which results from Traumatic Influence; with Report of Four Typical Cases. (*Journal of Mental and Nervous Diseases*, July, 1893, p. 484.) By Thomas H. Manley, M.D.

The author repudiates the opinion that the medullary substance of the cord can be regarded as in any sense a highly vascular structure. It is easy to understand how we may, in certain pathological conditions, have a hemorrhage of a very limited extent from the venous radicles, the arterioles, or capillaries. But that we can ever have a primary hemorrhage of any tangible proportion, as a consequence of physical violence, into the medullary substance, without destruction of the overlying soft parts and the bony canal, has not yet been demonstrated. In all my cases of spinal hemorrhage in which post-mortem examinations were permitted the blood escape was external to the theca,—extra-dural.

A Case of Subcortical Cyst of the Lower Part of the Left Ascending Parietal Convolution; Operation; Recovery. (*American Journal of the Medical Sciences*, July, 1893.) By Theodore Diller, M.D., and J. J. Buchanan, M.D.

Paresis of right arm and hand, and palsy of face. Considerable impairment of power in right leg. Sensation normal. He is frequently at a loss for a word. Says he can think of all words he wishes to express, but cannot always utter them. No word deafness, nor soul blindness. Mental condition good. Headache, vomiting, vertigo, and convulsions in the paretic parts were present. The eye-grounds aroused suspicion, but no positive evidence of choked disc was present. Aphasia was the first symptom, and the course of the disease was gradual.

Operation was followed by marked improvement in the aphasia and paresis of leg and arm. Convulsions persist.

A Case of Local Catalepsy, an Undescribed Hysterical Disorder. (*American Journal of the Medical Sciences*, August, 1893, p. 148.) By John K. Mitchell, M.D.

Female, aged seventeen years, single. The left hand is held ordinarily in the "obstetric atitude." All voluntary movements of the wrist are preserved, but none of the fingers. If the wrist be passively and rapidly flexed and extended, the motion, at first easy, soon becomes more difficult, and a rigidity similar to that of the digits possesses it; even then it readily performs voluntary flexion and extension. The fingers may be placed in any position, even the most unusual, and will remain almost indefinitely in the posture thus given; they may be passively moved with much greater difficulty than would be found in moving the fingers of an ordinarily muscular person against his resistance. The opposition is constant, the stiffness yielding slowly and steadily, not suddenly or with a jerk. Untouched they remain exactly as placed. Pain sense is lost in the whole left hand as high as the annular ligament, where it suddenly becomes acute again. There is no sense of touch, localization, or temperature change.

Modern Pathology and the Pathology of Nervous Diseases, with some Therapeutical Deductions and Experiments with Organic Extracts. (*Boston Medical and Surgical Journal*, May 18, 1893.) By Charles L. Dana, A.M., M.D.

The author sums up as follows:

1. The term inflammation has to be applied more carefully and with restrictions to nervous diseases. Many forms or cases of meningitis and myelitis are toxæmias or processes secondary to mechanical injury. There cannot be inflammation without specific cause. 2. In the organic neurosis of degenerative type there is a toxine of extrinsic or intrinsic origin, which is negatively chemotactic. The body cells and proteids cannot defend the special parenchyma against it. The degenerations, including muscular atrophies and primary sclerosis, are of toxic origin. There is a poison at work which it should be the effort of neurological science to antagonize and combat. 3. In the chronic neuroses of functional origin, so called, such as paralysis agitans, chorea, epilepsy, and Basedow's disease, there is a toxic

factor which is of fundamental importance. This may be due to defective gland action, as in Basedow's disease and in myxœdema, or to humoral poisons of other origin. Many neuroses are really glandular or nutritive or infectious diseases. 4. Another element of equal importance in the etiology of the neuroses is an inborn or acquired lack of resistance to injurious agents, whether engendered within or introduced from without. This diminished power is in some instances produced by strong emotions and shocks, and the nerve-centres become susceptible to the action of poisons which continue and keep up the disease. Hence in treating the chronic neuroses two kinds of measures are to be employed: first, those which increase the strength and resisting powers of the organism; second, those which are of antitoxic or specific character. There are probably specific cures for many diseases which we now regard as hopeless. 5. The toxic origin of myxœdema has been established, and made probable in exophthalmic goitre, paralysis agitans, and chorea, and the importance of a toxic element has been shown in epilepsy. 6. By the term toxine is meant the product of defective metabolism, due either to defective gland action, microbic growth, or the extrinsic vegetable and mineral poisons.

PEDIATRICS.

IN CHARGE OF T. M. ROTCH, M.D.,

Professor of Diseases of Children, Harvard University; Visiting Physician to the Children's Hospital, Boston.

ASSISTED BY

E. M. BUCKINGHAM, M.D.,

Instructor in Diseases of Children, Harvard University; Visiting Physician to the Children's Hospital, Boston.

(Continued from August number, p. 664.)

2. *Blood of the newly born and of those born before Term.*—Twelve examinations tend to show that at birth the infant presents a very abundant leucocytosis, and that this condition increases during the next twenty-four hours. It is characterized by a considerable increase in neutrophiles. In other words, destruction of the older elements appears to be arrested at birth, or even after. By the end of the second day metamorphosis of leucocytes appears to be accelerated, so that by the fifth day there are fewer of them than in nurslings. It is only by the seventh or tenth day that the different forms reach their normal proportions by the relative and absolute increase of lymphocytes.

3. The dimensions of red corpuscles are more variable in infants than in adults, the smaller corpuscles being smaller and the larger ones larger. In young children they are more sensitive to the action of reagents and of

liquids, and become more easily swollen and round. Their hæmoglobin is less firmly fixed. The corpuscles are richer in stroma. During the first four days clearly marked nuclei are found in the red corpuscles, but their number diminishes after birth. Microcytes are more numerous in the blood of the new-born than in that of nurslings. The diurnal variation in the number of red corpuscles is greater in infants than in adults. The essential peculiarity of the blood of the newly born is the oscillation in its anatomical composition. In the opinion of the author a part only of these phenomena is explainable by the growth of the elements of the blood, a part depends on pathological conditions. The number of red corpuscles per centimetre has been variously estimated by different observers (figures are given,—the largest eight million three hundred thousand, the smallest three million two hundred thousand). In general the number is increased during the first twenty-four or forty-eight hours, this increase coinciding with that in leucocytes,—a phenomenon which, according to the author, depends on the infant's receiving no nourishment for some hours after birth. After six or seven days there is an irregular diminution in red corpuscles, with some oscillation. This diminution, in the opinion of the author, is not entirely because the infant is entering upon new physiological conditions. Researches of Leichtenstern and others have shown the proportion of hæmoglobin to be greater at birth than in nurslings or adults. The few researches made by the author in this direction tend to establish the same view.

4. *Chemical Peculiarities.*—The deep color of the blood is especially marked during the first days of life. According to Krüger, the blood of the new-born has a marked tendency to coagulate, but coagulation is slow,—a phenomenon which has a relation to the slow destruction of leucocytes. Krüger states that this blood is richer in iron and poorer in fibrin than that of a child of fifteen days. Other researches have shown that it is richer in salts than that of the adult; that the proportion of chlorides and of free potassium and free sodium is smaller, both in the serum and the corpuscles, and that the blood is richer in sodium and poorer in potassium.

There is thus a difference between the blood of the newly born and that of nurslings. Clinical observations show also a loss of weight and of temperature during the early days,—changes which the author does not believe to be due to ordinary hygienic conditions alone. He assumes that the alteration in weight and the modification of the blood at this time depend upon the same process; that the cause of these changes is a change from the normal nutritive conditions; and he explains this process by assuming that the young organism is incapable of resisting different pathological agents.

The blood of four children of premature birth was explained. There were fewer leucocytes than in the blood of those born at term. The final morphological metamorphosis was the same, but the process was slower. The number of red corpuscles remained unchanged during a long time.

At the moment of birth the blood of the premature child is younger than the blood of a child born at term. When the premature child develops slowly it has the blood of anæmia.

Other observations follow on the blood of children sick with various acute diseases.

Ninety Observations on Acute Articular Rheumatism in Childhood. (*La Province Médicale*, Nos. 19, 20, and 21, May, 1892; *Revue de Méd. Chir. Obstet.*, June 22, 1892; *Revue Mensuelle des Maladies de l'Enfance*, June, 1893, p. 278.) By M. Perret.

This affection is less common among children than among adults. The influence of the seasons does not appear very clearly, but heredity plays an important part in its production. Two peculiarities are noted with regard to localization: first, as in adults, its rarity in the hip-joint; second, the frequency in children, as compared with adults, of manifestations in the vertebral column. General phenomena are commonly but slightly marked. This is perhaps due to their relation to the number and intensity of joint-affections. The thermometric curve, as with adults, is irregular, and bears a relation to the exacerbations and extensions of the lesions. Sweating and sudamina are observed; also hemorrhages, and particularly nasal hemorrhages. The urine presents no differences from that of adults. Anæmia is an almost inevitable consequence of the rheumatism of children, as of that of adults. It surpasses that of any other disease, with the possible exception of malaria, and it leads not only to pallor, but to souffles in the neighborhood of the pulmonary artery and of the vessels of the neck.

Much the most frequent complication is endocarditis. It is very difficult to determine the precise moment when endocarditis begins, for it can only be diagnosticated when the souffle appears. It persisted in the great majority of the cases until they were able to be out; nevertheless, in eight cases it became materially lessened, and in five it disappeared. In one of these last resolution took place very slowly, and it was not until eight months that the child had regained its former state. Therefore one should not be in a hurry to make the diagnosis of a permanent lesion. Pleurisy must be cited among other complications. When it occurred it was much more often in the beginning than in the course of the disease. Six patients presented a more or less abundant eruption.

Pseudo-Pleuritic Signs in the Pericarditis of Children. (*Bullet. Méd.*, 1893, p. 123; *Revue Mensuelle des Maladies de l'Enfance*, June, 1893, p. 280.) By Marfan.

The author discusses the value of the sign of Pins (of Vienna). This has also been recently studied by Perret and Devic, of Lyons.

In infantile pericarditis with effusion, pseudo-pleuritic signs may be observed capable of disappearing when the patient is placed in the knee-chest position. This constitutes the sign of Pins, and it has greater diagnostic

value than the classical signs of pericardial effusion: increased cardiac dulness, triangular in shape, with the left side of the triangle curved inward, abolition of the impulse at the apex, and mutability of these symptoms with changing position of the patient.

When a child has pericardial effusion, auscultation of the left back may show dulness, a pleuritic rub, and broncho-egophony, but without râles and with little or no modification of the thoracic vibrations. In the knee-chest position these symptoms may disappear. They are due to atalectasis at the base of the left lung, caused by pericardial effusion, together with the relatively large heart and small thorax of the child. For the production of this sign it is not even necessary that there should be pericardial effusion. Thickening of the pericardium without effusion may be enough: witness a case where the clinical diagnosis was verified by autopsy.

SURGERY.

IN CHARGE OF B. FARQUHAR CURTIS, M.D.,
Surgeon to St. Luke's Hospital and to the New York Cancer Hospital.

How to Operate for Hemorrhoids. (*Therapeutic Gazette*, April 15, 1893.) By C. B. Kelsey, M.D.

In a clinical lecture Kelsey publishes some of his experience in the treatment of hemorrhoids. He rejects Whitehead's operation, because when the cases do badly, as they will occasionally, even in the hands of good operators, it is liable to result in eversion of mucous membrane at the anus or in cicatricial stricture. The plea that it prevents recurrence he considers unnecessary, because he thinks recurrence a very rare thing after the usual operations by ligature or by clamp and cautery. Of the two, ligature or clamp and cautery, he prefers the latter, because it leaves no constricting ligature to cause pain, and his patients recover more quickly. He claims that the danger of hemorrhage is nothing when the operation is properly performed. If the patient is very unwilling to submit to an operation, carbolic acid injections may be made, injecting five or ten drops of a ten-per-cent. solution into the centre of the tumor with a fine hypodermic syringe. But there will be many failures and some accidents, such as syncope, great pain, or sloughing, or abscess and fistula. Another palliative method of treatment—for carbolic acid is, after all, only a palliative—is the cauterization of the surface of the pile with nitric acid or the galvano-cautery. But the radical operations are the surest and safest.

The Radical Cure of Inguinal Hernia in the Male. (*Annals of Surgery*, May, 1893, 542.) By W. S. Halsted, M.D.

Halsted reports eighty-two cases of hernia operated upon at the Johns Hopkins Hospital without a death. In fifty-eight cases his peculiar method

was employed. It resembles Bassini's, being originated independently and about at the same time, four years ago. He transplants the cord into a new opening some distance away from the inguinal canal, slitting up the abdominal wall upward and outward in order to place it there, this wound being closed by sutures. The cord itself is reduced in size by cutting away the veins. This reduction in the size of the cord, and the transplantation of the cord farther away from the pubis, together with the fact that its external portion comes to lie subcutaneously, are the differences between his operation and Bassini's. His ultimate results he claims are excellent.

GENITO-URINARY SURGERY.

IN CHARGE OF WILLIAM K. OTIS, M.D.,

New York.

The Role of Posterior Urethra in Chronic Urethritis. (*New York Medical Record*, July 29, 1893.) By Bransford Lewis, M.D.)

After a careful consideration of the greater part of the recent literature on this subject, together with painstaking observations in many cases of his own, Dr. Lewis has reached the following conclusions:

1. The causes usually given for the prolongation of cases of clap (presence or absence of gonococci, stricture of large calibre, the use of particular drugs in treatment, etc.) do not satisfactorily explain them, nor do they furnish reliable means for prognosticating the outcome of a case.

2. A single widely-prevalent cause for such prolongation of gonorrhœa has, as yet, not proved its right to recognition as such. [? W. K. O.]

3. Posterior urethritis, by reason of its anatomical seclusion and inaccessibility to ordinarily-prescribed treatment, if frequent, offers the best explanation for such prolongation or repeated occurrence.

4. Scrutinizing clinical investigation shows posterior urethritis to be present in the great majority of cases of prolonged or severe gonorrhœa.

5. Direct, topical treatment to the posterior is, therefore, necessary in the great majority of cases.

6. The causes usually given for producing posterior urethritis are not commonly found to be real factors in the clinic.

7. The mode of onset usually described does not coincide with that discerned in clinical observations.

8. These two latter observations confirm the probability that the posterior urethral infection is accomplished through the lymphatics, and explain the frequency of such infection.

9. Posterior urethritis is not a complication, but a natural phenomenon.

The Clinical Aspects and Pathological Anatomy of Chronic Urethritis and Blennorrhagic Prostatitis. (Zur Klinik und pathologischen

Anatomie der chronischen Urethritis posterior und Prostatitis blennorrhagica chronica. *Internationales Centralblatt f. d. Phys. u. Path. d. Harn. u. Sex.-Org.*, Band iv. Heft 3.) By Dr. Ernst Finger.

Dr. Finger, of Vienna, considers that chronic urethritis is a "focus" process which runs its course in the subepithelial connective-tissue hypoplasia. Affection of the epithelium and glands is either a complication or a sequela. The foci of chronic urethritis are most often localized in the pendulous portion, the bulbous portion, or the prostatic portion of the urethra, the membranous portion enjoying a relative immunity from the chronic process. The foci of chronic inflammation are situated in the mucosa and the subepithelial connective tissue of the posterior portion in one set of cases, while in a second set the foci invade by continuity the submucous tissue, in the anterior portion the periurethral and cavernous tissue, in the posterior portion the prostate.

In this way complicating chronic processes arise, in the anterior urethra chronic periurethritis and cavernitis, in the posterior chronic prostatitis. We have, therefore, anatomically speaking, the following forms of chronic urethritis:

I. Chronic anterior urethritis.
   a. Chronic anterior urethritis involving the mucous membrane superficially (superficialis).
   b. Anterior chronic urethritis involving the deeper layers.

II. Chronic posterior urethritis.
   a. Chronic posterior urethritis superficialis.
   b. Chronic posterior urethritis involving the deeper layers,—*i.e.*, chronic prostatitis.

Mixed forms may also be present.

A Simple Method of performing Supra-Pubic Cystotomy. (*London Lancet*, May 27, 1893.) By Lawson Tait, F.R.C.S.

In the performance of this operation Mr. Tait makes use of no precautionary measures or preparatory steps; neither packs the rectum nor distends the bladder. He stands on the left side of his patient and cuts upward about two inches and a half, starting immediately over the ridge of the pubic arch, exposing the tendon at one sweep. He then cuts the tendon transversely for about an inch close to the bone, and cuts it up centrally for an inch and a half. He then passes his left forefinger down between the bladder and the pubic arch, and following it with a pair of forceps, gently rends the tissue until he can feel the bladder-wall. This can easily be determined by its peculiar feeling, and by the fact that once the forceps grip it they hold, and they do not merely hold cellular tissue. Having fixed one pair, he then fixes another close to them. His assistant takes them right and left, and gently pulls them apart, as in abdominal section. A notch of the knife follows, and a rush of water declares the road into the bladder for the forefinger to be open, or the educated finger

detects the fact for itself. The rest is all finger-work, and consists, as in abdominal section, of a gentle but firm extension of the opening into the bladder till the lithotomy forceps can follow it. The forceps seize the stone, the forefinger arranges it as it may be judged best for its extraction, and it is gently removed. All his cases have recovered without the slightest trouble, and though up to the present time he has had a glass drainage-tube passed into the bladder and secured by stitches, he is of the opinion that this will prove an unnecessary precaution, and that probably it will be quite safe to close the bladder immediately by deep sutures. Mr. Tait warns those attempting this method not to pull the bladder up too much and make the opening too low down in the front wall, where they may meet the radicles of the prostatic plexus.

Rupture of the Urethra in the Male. (*Medical News*, August 5, 1893.) By Clinton B. Herrick, M.D.

The prognosis as to life in rupture of the urethra depends upon the condition of the patient at the time of the operation. If several days have elapsed since the injury, with little or no urine passing, and with extravasation, the chances are against recovery. On the other hand, with slight injury, some water passing, and with little or no extravasation, the patient should recover in every instance, as well as in those more severe cases that have been seen and operated upon within a few hours after the accident.

The causes of urethral rupture may be internal, external, or through some other organ. The symptoms are difficulty in urination or retention, pain, swelling in the perineum, hemorrhage, dribbling of urine through the external wound.

If the cause be a foreign body, it should be removed by the meatus, if possible. If there is no swelling in the perineum, and if the urine flows freely through the meatus, allow nature to take its course, watching closely for any further symptoms. If swelling exists in the perineum, with evidence of extravasation, perineal section should be done at once. Care must be taken to keep the wound and the bladder as aseptic as possible. Supporting and antipyretic treatment should be vigorously employed. The prognosis should be guarded. Care should be given as regards the calibre of the urethra for several weeks afterwards.

[While agreeing in the main with the very excellent views of Dr. Herrick, I personally prefer to perform perineal section as speedily as possible in *all* cases where the urethra is ruptured, thinking it adds but little to the gravity of the situation, while it offers the greatest possible security against sepsis, extravasation, and hemorrhage, and may have to be performed at a later period, to the surgeon's great disadvantage and danger to the patient. —W. K. O.]

ORTHOPÆDICS.

IN CHARGE OF REGINALD H. SAYRE, M.D.,
Assistant to the Chair of Orthopædic Surgery, Bellevue Hospital Medical College, New York.

Shoulder-Joint Disease. (*Provincial Medical Journal*, May, 1893.) By John Ridlon, M.D. (Chicago), and Robert Jones, F.R.C.S. (Liverpool).

Chronic disease at the shoulder-joint is not of very frequent occurrence in children, or in adults who, from the nature of their occupation, do not subject this joint to injury; but in certain classes of laboring men—*i.e.*, those whose work is of a laborious nature—injury of this joint is more frequent than that of any other, and enforced neglect from the necessity of unceasing labor very frequently results in chronic disease. In these adult cases following a wrench or neglected sprain the synovial membrane is usually affected, and the disease may continue as a pure synovitis, or the bone may become involved. In children and in the non-traumatic cases the osseous form of the disease appears first quite as frequently as in disease at the other joints. In osseous disease the trouble begins, as a rule, in the head of the humerus, rarely in the walls of the glenoid cavity.

In the traumatic form which is associated with adult life and which has scarcely ever been referred to by writers, the chronic symptoms gradually become engrafted upon a slight synovitis; some have described a not dissimilar condition which they include in the class of osteo-arthritis. The condition, however, presents many points of difference to tubercle, rheumatism, or to osteo-arthritis. The course is much more benign than tubercle; it occurs in subjects who are strong and active; it rarely, if ever, results in suppuration; it invariably yields to treatment and with but little variation in the length of time. From chronic rheumatism it may be readily recognized. It is not grafted upon an acute condition; it results from an injury; it is always worse after exercise; it is not an accompaniment of general rheumatism. With osteo-arthritis it should rarely be confounded. It results in destruction or eburnation of joint surfaces; rest never tends to stiffen but to loosen the joint; it presents none of its characteristic symptoms; its clinical career has nothing in common with it. Rheumatism is certainly prone to complicate it, so that the patient complains fitfully, often in accord with atmospheric conditions. This, however, is the case in other non-rheumatic conditions such as fractures, in injuries of muscles, or even in a healing wound. The arm is held closely to the side; pain is complained of over the joint and often at the insertion of the deltoid; the patient is unable to sleep upon the shoulder, and should he accidentally lie upon it he awakens in pain. Acute pain is experienced upon pressing a point just below and to the outside of the coracoid process which corresponds to the front of the head of the humerus. There is an inability to rotate the joint either inward or outward without discomfort. Abduction is limited and elevation of the arm impossible. The surgeon, in short,

elicits from the patient the following story: "My arm is weak and painful; I dare not lie upon it at night, or the pain becomes incessant; I cannot lift it from my side beyond a short distance; it pains dreadfully if I attempt either to get my hand behind my back or behind my head, and yet I can touch my opposite shoulder with no discomfort, and I can with equal ease push my arm forward." So correct is this clinical description that the authors are never at a loss to anticipate a patient's story.

Differential Diagnosis.—The diagnosis in the traumatic cases is materially aided by the history of the injury, and although rheumatism may attack an injured point, too much credit must not be given to the rheumatic theory. Tubercular osteitis should not be mistaken for rheumatism because of the insidious onset and absence of early involvement of the soft parts.

When shrinking of the muscles is extensive and in cases that have experienced no pain, the part in appearance resembles certain spinal and traumatic palsies. In the paralysis, however, there is abnormal passive mobility, while in joint-disease the mobility is diminished or altogether wanting.

The treatment of the adult variety of chronic shoulder is the same as if it were tubercular: rest from pressure, friction, and function. Treatment usually lasts for from three to five months, and the test of recovery most convenient to the practitioner is the patient's ability to sleep painlessly upon his joint. This form never results in anchylosis unless neglected. The test of recovery in tubercular cases is in a fixed and painless anchylosis, or where anchylosis does not exist, a range of motion which may tend to increase but *never* to diminish.

OBSTETRICS AND GYNÆCOLOGY.

IN CHARGE OF JOHN M. KEATING, M.D., LL.D.,

Colorado Springs, Colorado; Fellow of College of Physicians of Philadelphia; Gynæcologist (Emeritus) to St. Agnes's Hospital, Philadelphia; formerly Visiting Obstetrician to the Philadelphia Hospital (Blockley); Editor "Cyclopædia of the Diseases of Children," etc.

The Treatment of Posterior Displacement of the Uterus. (*Maryland Medical Journal*, April 29, 1893.) By J. Whitridge Williams, M.D.

In the course of this very interesting paper the author thus describes Dührssen's method of operating: At the meeting of the Berlin Gynæcological and Obstetrical Society held July 8, 1892, Dührssen, Gusserow's assistant, described a method of operating which certainly far surpasses any other vaginal operation yet suggested, from both a theoretical and a surgical point of view. He makes a transverse incision two to three centimetres long in the anterior fornix of the vagina, just anterior to the attachment of the vaginal portion of the cervix, and then separates the bladder from the anterior surface of the cervix and the body of the uterus as high up as possible without breaking through into the peritoneal cavity, just as one does in the first step of a total extirpation of the uterus by the vagina. A sound

is then introduced into the bladder to act as a guide, and the uterus is thrown forward by a second sound; then a ligature is introduced into the anterior wall of the uterus as high up as possible, but is not tied, and is to be used simply as a tractor. On making traction upon this one is enabled to pass a second ligature above it, and so on until three or four tractors have been passed, and we are enabled by their aid to draw the fundus forward and downward and hold it in the desired position. Then three silk ligatures are passed through the anterior wall of the uterus, and above the highest tractor, and then through the vaginal wall, just in front of the incision, and include its entire thickness except the mucosa. They are then tied, cut short, and the incision in the anterior fornix closed; the vagina is packed with gauze, and the woman put to bed and kept there about two weeks. Dührssen has performed this operation one hundred and forty times in all, and none of the women have been seriously ill from it; 89.4 per cent. of the cases operated upon have been permanently cured. This is certainly a brilliant showing, and the operation appears to be the most rational of all the vaginal methods yet suggested. An operation more or less similar to the above was described by Mackrenrodt one month before Dührssen's paper was read, but he had not given his operation anything like the trial to which Dührssen had subjected his own operation.

Extra-Uterine Pregnancy. (*Bristol Medico-Chirurgical Journal*, June, 1892.) By A. E. Aust Lawrence, M.D.

The whole diagnosis, the author remarks, might be summed up in a few words. He should say that when a previously healthy woman missed one or more periods and was taken with acute abdominal pain and fainting, and those symptoms recurred at short intervals, and the vaginal examinations revealed a retro- and peri-uterine hæmatocele, either extending or not up into the abdomen, it was imperative to open that abdomen without delay.

The Life and Death of Uterine Fibroids. (*Archives of Gynæcology, Obstetrics, and Pediatrics*, June, 1893.)

Kleinwächter has watched one hundred cases of fibromyoma of the uterus for many years. Forty of these furnished him with satisfactory data as to the growth of such tumors. The forty histories are published in his paper. He concludes that there is no fixed rule for calculating the age of a fibroid from its size. A fibroid, as a rule, grows quickly from a little lump to a big tumor, and the latter condition by no means implies an earlier stage where for many years the tumor was a small lump. Sudden increase of a fibroid already large is frequent. It is quite exceptional for a fibroid to remain stationary or to diminish before the menopause. The precise truth about the beneficial effects of ergot in this respect is difficult to determine. Wasting diseases play a part in diminishing the bulk of fibroids. In pregnancy the fibroid certainly increases, and it diminishes during involution after delivery, and apparently may disappear altogether. The

growth of large fibromata may be preceded by the development of smaller fibroids. The menopause has not nearly so beneficial an influence on fibroids as is generally supposed. They often continue to grow, and sometimes more quickly than before. About the menopause there is some risk of malignant degeneration of the tumor. There is no accurate explanation why some fibroids grow quickly and others slowly. The influence of local and external inflammations must be considerable, but has not as yet been determined. Kleinwächter thinks, with Gusserow, that the rate of growth probably depends on the prevalence of the myomatous or the fibromatous elements in the fibroid,—a matter which cannot be elucidated by purely clinical research.

Trendelenburg Position in Gynæcological Operations. (*Archives of Gynæcology, Obstetrics, and Pediatrics*, July, 1893.)

F. Schauta writes in the highest praise of this position for gynæcological operations. He not only recommends it for operations, but calls attention to the fact that it is often of material aid in making a diagnosis in the simple bimanual examinations without ether. The recession of the intestines towards the diaphragm enables the pelvic viscera and their relations to be much more easily studied. The objection to its use in cœliotomy—that the bladder is more easily wounded—he considers not borne out by facts; and the second objection—that in this position pus is more likely to gravitate towards the upper part of the abdominal cavity in case of bursting pus-tubes or abscesses—is, in his opinion, entirely offset by the more perfect ease with which the origin of such pus can be seen and its spread controlled. In two cases early in the series of one hundred and four, in which this position was used, twisting of the intestines occurred, and resulted in death. These occurrences led him to study the behavior of the intestines in this position on the cadaver, and he found that those coils of intestine which are on the high side and underneath when the abdomen is opened gradually work over to the left and towards the front. If the abdomen is closed while the patient is in the Trendelenburg posture, they may not resume their natural position, and so give rise to trouble. If, however, the precaution is taken to place the patient horizontally before the abdominal wound is closed, and the edges of the incision are held apart a little to favor their moving easily, they return to their normal position. Schauta has followed this rule in his last seventy cases, and has had no such complication.

OPHTHALMOLOGY.

IN CHARGE OF J. E. HARPER, A.M., M.D.,
Chicago, Illinois.

Heterophoria and its Treatment.—Dr. F. W. Marlow (*New York Medical Journal*, April 15, 1893) discusses this subject and relates the histories of patients to prove—

1. That incomplete tenotomy can alter the position of rest.

2. That correction of refractive error fails to remove heterophoria in many cases, and that in others the glasses cannot be worn until after the heterophoria is corrected by prisms or tenotomy.

3. That symptoms unrelieved or aggravated by refractive correction are relieved by muscular treatment, and that cases in which no refractive error is present are relieved by correction of heterophoria.

He concludes that the experience he has had in the treatment of latent deviations of the visual axes up to the present time seems to point to the following generalizations:

1. That the kind of deviation has very rarely any relation to the kind of refractive error.

2. That heterophoria is only exceptionally influenced by the correction of the refractive error.

3. That in many cases the symptoms can be relieved by prisms alone, or in combination with the refractive correction.

4. That in some cases of undoubted heterophoria prisms are rejected altogether, and that in some of these cases correction by tenotomy or tenotomies gives the desired relief.

5. That the position of rest can be changed by a strictly *partial* tenotomy.

6. That the ophthalmologist who ignores the condition of muscular equilibrium in a case of asthenopia (in the widest sense of the term) does not do his whole duty to his patient.

The Possibility of the Early Diagnosis of Locomotor Ataxia by the Eye-Symptoms.—Dr. Howard F. Hansell (*Journal of the American Medical Association*, February 18, 1893) summarizes his conclusions on this subject as follows:

1. That a transient external paralysis, for example, a ptosis or esotropia, in the absence of known cause might be an indication of incipient tabes.

2. The spinal myosis, the reflex to light wanting but to convergence preserved, monocular or binocular, would warrant a strong suspicion of incipient tabes.

3. "Idiopathic optic" nerve atrophy, non-inflammatory, of unequal degree, often precedes by months or years the appearance of the spinal symptoms of tabes.

4. That pareses of one or two extrinsic muscles, spinal myosis and Argyll-Robertson pupil, and incipient optic nerve atrophy, coexistent in a

person of from thirty to sixty years of age, with inherited neurotic tendencies, are forerunners in the majority of cases of posterior spinal sclerosis.

DISEASES OF THE LARYNX, NOSE, AND SURROUNDING STRUCTURES.

IN CHARGE OF J. PAYSON CLARK, M.D.,

Physician for Diseases of the Throat, Massachusetts General Hospital; Physician to the Throat Department, Boston Dispensary.

Treatment of the Nose and Throat as a Source of Middle-Ear Disease.—Dr. Thomas Barr (*Lancet*, December 17, 1892) discusses this subject, and offers the following precautionary suggestions which should be kept in view when treating the nasal passages and naso-pharynx, in order to avoid or diminish the risk of exciting disease in the middle ear.

1. Patients before using the nasal syringe, Weber's douche, or the hand-douche, should be carefully instructed by the surgeon in their proper and safe use.

2. Previous to injecting fluids by the syringe or Weber's douche, into the nose, or prescribing such, the nasal passages should be carefully examined, and if one should be found obstructed the fluid should be injected *into the obstructed passage.*

3. The nozzle of the syringe should not tightly close the nostril, and during the injection of the fluid the stream should be frequently interrupted.

4. If a syringe is employed, too great force must not be used, especially if there be resistance to the flow of the fluid from one nostril to the other; if Weber's douche is employed the fall must not be too great,—not more than two feet.

5. The fluid injected should always be comfortably warmed,—say 80° to 90° F.,—and it should hold in solution a saline, such as a one-per-cent. solution of common salt or bicarbonate of soda, while in ozæna or other bacterial diseases a definite antiseptic should be employed.

6. The act of swallowing must carefully be avoided during the douche; this is aided by breathing through the mouth. Eitelberg suggests that the patient should protrude the tongue so as effectually to prevent the act of swallowing.

7. In the case of infants or very young children, or in adults whose Eustachian tubes are abnormally permeable, the syringe or Weber's douche should not be employed. The liquid should in these cases be poured into the nasal passages with a spoon or other suitable appliance, while the patient (if old enough) should sound the vowel "a."

8. The patient should not blow his nose or, if possible, sneeze for at least fifteen minutes after; he should be instructed that in the event of the liquid entering the ear, he must swallow several times with the nostrils closed.

9. After operations on the nose or naso-pharynx, or the use of corrosive

substances which may produce swelling or obstruction, the syringe should be avoided or used with great caution, for a few days, during which the patient should be careful to avoid exposure to cold or septic influences.

10. In operations or cauterization great care should be taken to secure cleanliness and an aseptic condition of the instruments or appliances used. If the finger-nail is employed to scrape away vegetations there is obviously special need for precautions in these directions.

Lymphoid Growths in the Vault of the Pharynx. (*Brooklyn Medical Journal*, June, 1893.) By Thos. R. French, M.D.

These growths are to be found in this climate in at least five in every hundred children. According to the writer's experience they occur much more frequently than enlargement of the faucial tonsils. The condition is one of lymphomatous hyperplasia, the masses of tissue varying in density according to the amount of fibrous tissue contained in them. Age seems to have little influence on the development of this fibrous tissue. On account of their structure they should be called lymphoid and not adenoid. Catarrh of the nasal passages and pharynx probably plays small, if any, part in their causation in children, but later in life repeated catarrhal attacks may act as a cause. The disease is usually congenital, but does not, as a rule, cause annoying symptoms until the second or third year. The persistence of the general condition simulating struma which is found in many cases after the removal of the growths is probably due to the serious injury to the health caused by the growths or to the fact that the extirpation was not complete. In nearly all the writer's cases one or both parents were of advanced age, or suffered from deficient nutrition or some constitutional disorder before the birth of the child.

The facial expression is characteristic. Deafness, as a complication, occurs in more than half the cases. It may be constant or only during attacks of acute inflammation. More or less deformity of the upper jaw is almost invariable. The arching of the hard palate upward frequently causes deflection of the septum. The lungs are never fully expanded and the chest-walls sink in. The body is badly nourished. The nasal and pharyngeal resonance is lost and the voice becomes muffled and toneless. In singers even a small mass of lymphoid tissue back of the nose prevents the production of the higher notes and affects the purity of all the tones. The breathing is noisy, especially at night. Other symptoms, as gastric and intestinal catarrh, epistaxis, headache, cough, asthma, facial chorea, convulsions, nocturnal incontinence and sweats, occasionally occur as a result of this disease.

For examination rhinoscopy is preferable; if this is impossible, the forefinger can be used. The writer operates by reflected light, with the patient in the upright position. After the bulk of the mass has been removed frequent examinations should be made to determine the position of the remaining portions. Not more than two or three pieces should be re-

moved at a time; then, to prevent the blood flowing into the larynx, sponges should be passed into the back of the throat until bleeding has ceased. The writer uses a pair of forceps especially designed to secure a larger bite than permitted with most instruments. The finger-nail alone is ineffectual except the mass is very soft. Too great traction with the forceps is to be avoided. If the faucial tonsils are to be removed the writer generally leaves them until the lymphoid mass is removed. Hemorrhage is free and the loss of blood is apt to be considerable. Secondary hemorrhage occasionally occurs; hence the writer advises keeping patients under observation for twenty-four hours after the operation. Suppurative otitis media sometimes occurs as the result of the operation. The beneficial effects on the voice are usually shown at once, but sometimes it takes weeks or months.

Adenoids as a Cause of Chronic Deafness in Adults. (*Boston Medical and Surgical Journal*, June 29, 1893.)—Dr. W. H. Bates reports five cases of deafness with chronic catarrh of the middle ear. Politzeration did not improve hearing. No treatment was employed except the removal of the adenoid tissue from the pharyngeal vault. Great improvement in hearing followed in each case, although the adenoid tissue was not entirely removed in any.

A Malignant Growth in the Naso-Pharynx of a Child. (*Boston Medical and Surgical Journal*, June 29, 1893.)—Dr. John P. Paige reports the case of a boy of four years, who presented a tumor practically filling the naso-pharynx and descending low enough to touch the epiglottis. The growth was removed with post-nasal forceps in three sittings under cocaine, with trifling hemorrhage. On microscopic examination the tumor was found to be a myxo-sarcoma. A month after its first removal the growth was almost as large as at first, with a broader surface of attachment. It was again removed, but recurred rapidly, affecting the preauricular, submaxillary, and cervical glands. The patient died from inanition.

Is not too much Importance Attached to the Condition of the Tonsil? (*Boston Medical and Surgical Journal*, June 8, 1893.)—Dr. J. W. Farlow, in an interesting paper on this question, draws the following conclusions: 1. Because the tonsils are easier to see than the nose and post-nasal space is no sign that they are more important than the latter. 2. Form no estimate of the size of the tonsils unless you see them in repose. 3. Always examine the back teeth and the base of the tongue. 4. In acute follicular disease of the tonsils, look for and treat disease of the other follicular tissue in the throat. 5. Nasal obstruction, cough, and impaired voice are much more likely to be due to nasal or post-nasal hypertrophy than to tonsillar. 6. The fact that the tonsils are enlarged or diseased should lead us to look for a possible explanation in the parts higher up. 7. Free the nose and the post-nasal space in addition to, or instead of, tonsillotomy, if you wish to improve the voice and respiration.

DERMATOLOGY.

IN CHARGE OF W. A. HARDAWAY, A.M., M.D.,
Professor of Skin Diseases in the Missouri Medical College, St. Louis.
ASSISTED BY
C. F. HERSMAN, A.M., M.D.,
St. Louis.

The Analogous Aspect which may Exist between Certain Cases of Syphilis and Leprosy.—McMurray (*Australian Medical Gazette*, April, 1893) calls attention to the fact that modern advances in our knowledge of syphilis show that it is capable of producing symptoms similar to those of tubercular leprosy. As an illustration he cites the following case: A woman thirty-nine years old, who had had a venereal sore four years before, presented herself with lesions which had been pronounced by several physicians to be leprosy. On the right side of the nose, extending to the alæ and encroaching on the lower eyelid, was a tubercular swelling, sharply defined, firm to the touch, the skin over it being of a deep sombre tint, lustreless, and slightly scaling. Another tubercle similar to that just described, save that it was smaller and presented a crater-like depression, existed upon the right frontal eminence. There were no lesions on the trunk, but numerous nodes like those described, varying in size, were found upon the extremities. The left ulnar nerve was thickened and tender to the touch. Analgesia and anæsthesia were present over all these spots, and could even be found in apparently normal skin, especially on the dorsal surfaces of both metacarpi. There was bilateral syphilitic onychia of the thumb-nails. The case improved in so marked a manner under antisyphilitic treatment as to leave no doubt of the diagnosis. The author mentions Fournier's observations that in syphilis disturbances of cutaneous sensibility most frequently take the form of analgesia, associated sometimes with anæsthesia and loss of thermic sensibility. Such disturbances may be general in their distribution or confined to limited areas; in nearly all cases the trouble will be found on the dorsal surface of the metacarpus. It is thus evident that the disorders of sensation cannot be relied upon to differentiate between leprosy and syphilis.

The Present Position of the Hypodermic Method in the Treatment of Syphilis.—J. William White (*American Lancet*, May, 1893) sums up in a concise way the arguments for and against the administration of mercury by the hypodermic method. The latter seem in the mind of the author greatly to outweigh the former. He refers to the diagnostic importance of calomel thus administered, as claimed by Julien. Dr. White thinks that if this claim can be substantiated it will be one of the best results growing out of the recent excessive use of the hypodermic method. The author then quotes the opinions of a number of syphilographers, both in this country and abroad, on this method of treatment. Fournier says, "My opinion is it is not a good treatment. The injections are painful,

they interfere with the patient's avocation, they necessitate frequently repeated visits. Above all, the method is not practicable." Hutchinson says, "Hypodermic injection has come but little into use in England, nor does it seem to increase in favor with those Continental surgeons who at one time thought highest of it." Taylor gives as his opinion, "No importance should be attached to claims of speedy cure. They show that their sponsor knows little about the natural history of syphilis. The disease is chronic and far-reaching, and requires a corresponding treatment."

The author sums up the circumstances under which the hypodermic method should be used as follows: (*a*) Those cases in which other methods of treatment have been used and have failed. (*b*) Those cases in which, owing to intercurrent disease or idiosyncrasy, the skin and digestive tract cannot be used for the introduction of mercury. (*c*) Those cases in which, owing to grave and advancing lesions, rapid mercurialization is absolutely necessary. (*d*) Those case in which obstinate localized lesions can be most directly reached by this method. (*e*) Possibly those cases in which an early diagnosis between syphilis and malignant disease is important. (*f*) In cases where there is a doubt as to the nature of a sore, its rapid disappearance under the hypodermic administration of mercury, no other treatment being used, might be of diagnostic import.

Recent Advances in the Treatment of Diseases of the Skin and Syphilis.—Under this title Bulkley (*Journal of the American Medical Association*, May 13, 1893) read a very interesting paper before the American Medical Association. Though the material contained in this paper is not new to dermatologists, it embraces much information, gathered both from the literature and from the author's experience, which will well repay its perusal. The author calls attention to Blaschco's report of the beneficial effects of antipyrin as an antipruritic. He gives this formula for Dick's gelatin paste:

℞ White gelatin, ʒvi;
Glycerin, ʒix;
Dextrin, ʒi;
Oxide of zinc, ʒvi;
Water, ʒii.—M.

Dissolve the gelatin in water, applying heat; rub up the dextrin in the glycerin, and add to the gelatin when dissolved. When all is liquid add the oxide of zinc, thoroughly powdered.

The author advises that after this has been applied to the part, while it is yet in a liquid state, before it has dried, absorbent cotton be brushed lightly over it, as in this way the dressing is rendered more pliable and lasting by the adhesion of small particles of the cotton. The formula for linimentum exsiccans, an occlusive and protective dressing devised by Pick, is gum tragacanth, five parts; glycerin, two parts; water, one hundred parts. Bulkley thinks that resorcin in a watery solution of the strength of four to six per cent., with a small quantity of alcohol and glycerin added, is of the

greatest value in seborrhœic eczema of the scalp. Ichthyol possesses valuable antipruritic properties, and stimulates epidermic growth after burns. Menthol in oil in the strength of three to five per cent. often gives the very greatest relief in senile pruritus. The author then mentions some of the preparations of mercury recently used in the hypodermic treatment of syphilis, and calls attention to the fact that most modern writers are agreed that with sufficiently careful and long treatment syphilis is curable.

CLIMATOLOGY.

IN CHARGE OF GUY HINSDALE, M.D.,
Lecturer on Climatology in the University of Pennsylvania, Philadelphia.

The Human Nasal Canals as related to Climate and Pulmonary Disease. (*Science*, March 31, 1893.)—Dr. William C. Braislin shows that in negroes the nasal canals are wider, shorter, and less deep than in other races, and thereby less protection is afforded the lungs. The author believes that the African nose, being adapted to a tropical climate, is not suited for the colder climates, and that in this lies the greater susceptibility of the negro to consumption and other diseases depending upon irritating qualities in the atmosphere.

"Mountain Fever." (*Medical News*, April 8, 1893.)—Dr. Hubert Work, of Pueblo, Colorado, denies that this is a disease *sui generis*. He maintains that it is simply the febrile manifestation of various diseased conditions capable of classification only as belonging to other diseases, and for the sake of diagnostic accuracy would expunge the term from the nomenclature of Rocky Mountain practitioners. In complete forms of specific continued fevers, such as typhoid and relapsing fever, localized inflammations partially developed, acute catarrhal affections of the alimentary or respiratory mucous membranes, and disturbance of the nervous system will, if diligently sought for, furnish a basis for diagnosis in all these cases. An analysis of fifty cases admitted to the St. Francis Hospital at Colorado Springs during a single summer and autumn, sent there with the diagnosis of mountain fever, were found by Dr. Campbell to be either typhoid, malarial, intermittent, or remittent. In each of the six fatal cases post-mortem examination revealed the intestinal lesions of typhoid fever. In eighteen the rose-colored spots of typhoid fever developed.

Morocco as a Health-Resort. (*Medical Magazine*, London, March, 1893.)—Dr. Thomas More Madden says of the climate of Tangiers,—

"During my stay in spring the weather was mild and genial, and at mid-day was even too hot for much exercise. The position of the town, however, exposes it completely to the cold, damp winds, which rush through

the funnel-shaped straits from the Atlantic, while its aspect, being open to the east, must render it far more subject to this wind than Gibraltar is. The annual rainfall is about thirty inches, which, as in most parts of Africa, principally occurs at one season during the months of October and November. The rains being succeeded by great heat, vegetation is consequently rapid and early; thus in January the fields are already covered with flowers, and in March the barley crop is reaped. Though the climate is hot, it is not parched or arid, as the province of El-Garb is protected by the interposition of the two ranges of the greater and lesser Atlas Mountains on the south and southeast from the hot winds of the desert, its proximity to the Mediterranean and Atlantic, on the north and west, also modifying the temperature, which in this province seldom falls below 40° in winter, or rises above 86° in summer, at which season it should be a comparatively cool and agreeable residence."

Dr. Madden also condemns the climate of El-Araiche, one and a half days' journey from Tangiers, sometimes lauded as a resort for consumptives.

REVIEW OF ITALIAN, SPANISH, AND PORTUGUESE MEDICINE.

IN CHARGE OF A. M. FERNANDEZ DE YBARRA, M.D.,

New York,

Corresponding Member of the Medico-Chirurgical Academy of Madrid, Spain, the Argentine Medical Circle of Buenos Ayres, South America, and the Society for Clinical Studies, of Havana, Cuba.

Treatment of Influenza. (*Revista Médica de Chile.*)—Recapitulation of a discussion on the above subject at the Medical Society of the city of Santiago, Chili.

Dr. David Salamanca believes that, the true nature of the etiology of influenza not being yet well known, its treatment cannot but be symptomatic. As a general rule, he begins by giving a pill of blue mass followed by a saline purgative; then he prescribes beta-naphthol mixed with salicylate of bismuth, according to the formula of Professor Bouchard. If antipyrin does not relieve the headache, he says exalgine will certainly do it, of which drug, for that purpose, he speaks enthusiastically. Two tablespoonfuls a day of the following mixture have given him excellent results:

Exalgine, 2.5 grammes;
Tincture of orange, 10 grammes;
Water, 120 grammes;
Syrup, 30 grammes.

He holds the opinion that exalgine acts in much smaller doses than antipyrin, without depressing the nervous system.

Dr. Amaral recommends spraying the throat and nostrils with a one-and-

a-half-per-cent. solution of resorcin. He considers the administration of quinine very useful, especially after the first symptoms of the disease have passed away, and also during convalescence.

Dr. Dávila thinks the treatment of influenza ought not to be symptomatic, but stimulating. The treating of symptoms is, he says, convenient only after the first few days of the disease. The initial procedure should be the administration of purgatives or sudorifics, according to the state of the patient and the severity of the attack. Against the pulmonary congestion induced by the disease, he praises chloride of ammonium not only as a good resolvent but also for the sake of the effect of ammonia. He has often observed gastro-intestinal complications, which he combats by giving a slight purge followed by a sudorific.

Dr. Pardo considers very useful the administration of benzonaphthol, even though the intestinal symptoms be not very marked. He prescribes every morning an amylaceous pill containing

Benzonaphthol, 50 centigrammes;
Sulphate of quinine, 20 centigrammes.

Dr. Molinare believes the employment of cinchona and its derivatives, principally the sulphate of quinine, to be most excellent to counteract the infection. He administers ten centigrammes of this alkaloid twice a day as a nervous tonic during convalescence.

None of the physicians who took part in the discussion recommended the use of phenacetin.

Gymnastics and Physical Exercise in their Relation to Hygiene. (*Giornale di mèdicina pubblica*, January and February, 1893.) By Professor A. Montefusco.

This is an exhaustive and commendable memoir, in which the author successively reviews gymnastics from the oldest times down to the present, its physiology and that of all physical exercise in juxtaposition to sedentary habits and cerebral overwork, its hygiene, and its beneficial effects to school-children. Regarding this last aspect of the question, he says that a rigorous examination should be made in all public schools of gymnastics with the purpose of excluding tuberculous persons or individuals suffering from any other kind of contagious disease; that the pavement of the rooms of the gymnasium ought to be cemented with tar, the walls and the ceiling well polished, in order to be able to wash and disinfect them, and the students should exchange their clothes for an appropriate gymnastic attire before beginning the exercises.

Professor Montefusco also makes very good suggestions concerning the proper kind of gymnastic exercises most convenient to men of different occupations, to counteract the ill effect of their habitual mode of life. Thus, for instance, the typographer should practise those motions that cause the head to lean backward, raise and depress the shoulders, bend the upper part

of the body to the right, to the left, backward and forward, etc. The carpenters, turners, shoemakers, hatters, weavers,—the blacksmiths, even,—are not forgotten by the author, who briefly points out to them all the gymnastic movements to which they ought to pay particular attention. He also examines the different physical exercises involved in playing lawn-tennis, croquet, battledoor and shuttlecock, football, baseball, billiards, etc., and the gymnastic practices of running, leaping, swimming, skating, riding on horseback and on a velocipede, rowing, and fencing, but without ever carrying the exercise to the point of fatigue.

The Relation of Soft Chancre and Bubo to the Seasons of the Year. (*La rassegna di scienze mediche*, Modena, vol. viii., No. 1.) By Professor Tommasoli.

After three years of constant observation in the venereal clinic of the University of Bologna, the author found that the number of buboes following the appearance of soft chancre were about twice as frequent in the months of September, October, and November as they showed themselves in April, May, and June. This curious fact, he says, was first pointed out by him in 1885, corroborated by Profeta in 1888, and now, supporting his former announcement on the thirteen years' experience in venereal diseases of Dr. Razzaboni, of Modena, he positively asserts that buboes have their maximum of frequency in the fall and their minimum in the spring. The number of soft chancres follow this same peculiar course.

Gastro-Intestinal Origin of Peritonitis. (*Revista de medicina y cirugía prácticas*, Madrid, December 22, 1892.) By Dr. F. Ledesma Casado.

A. A., a married woman twenty-nine years old, of excellent constitution and good general health, always regular in her menstrual flow, had had four children without any trouble or bad consequences, began to suffer oftimes severe abdominal pains, of an intermittent nature, more marked in the right iliac fossa. On one occasion, in which the pain was unusually intense, she vomited and had diarrhœa, the matter ejected being of a strong acid reaction, and she had to stay in bed. The next day her abdomen was greatly swollen and tender, accompanied by all the usual signs and symptoms of peritonitis. As there was no previous affection of the genito-urinary organs, no external injury of any kind, no reason whatever to attribute the peritonitis to the tubercle-bacillus, the author concluded the disease must have been caused by the gastro-intestinal troubles, which, he says, like in certain kinds of erosive enteritis and ulcerative and perforative affections of the bowels, the protecting epithelium is destroyed, thus giving rise to the passage of septic agents (ptomaines and leucomaines) into the peritoneal cavity, either by a solution of continuity or carried to the peritoneum by the lymphatics. In his diagnosis by exclusion the author forgot to take into consideration the possible chilling of the abdomen, or of the soles of the feet, that might have taken place in the act of going to the chamber the night previous when the patient had severe stomach-ache and diarrhœa.

In the course of the disease a pleuritic effusion was detected, which Dr. Ledesma ascribes to the vascular and lymphatic connection of those two serous membranes, the peritoneum and the pleura. In my humble opinion, that uncommon complication rather tends to confirm the belief that the peritonitis was due to exposure to cold. The patient recovered.

Variola and Vaccinia. (*Brazil-Medico*, Rio de Janeiro, April 1, 1893.) By Dr. Olyntho Dantas.

The recent studies of Hacius, Eternod, and Fisher on the intensity of the variolic and vaccinic viruses, as also the contrary opinions sustained by Juhel-Rénoy and Barth (as they were expressed at the meeting of the Medical Society of the Hospitals of Paris, on the 17th of February last), have served the author as the basis for this interesting paper. He had observed, in his native State of Sergipe (United States of Brazil), certain facts which seem to him to prove conclusively the non-identity of those two viruses.

About the end of the year 1887 there arrived from Pernambuco, at the port of Aracajú, a vessel with a small-pox patient on board, who was taken to a little wooden house about a mile outside the town. Some one in the house, in view of the fact that the case was of a very benign nature, thought proper to vaccinate about thirty neighbors with the lymph taken from the vesicles. All the cases thus vaccinated "took," the majority of them having more or less a manifestation of the discrete form of variola; in some the confluent variety appeared; but none of the thirty died. Those suffering with discrete small-pox were treated in their own homes, but the others were confined in an improvised lazaretto. The whole town was soon invaded, many persons died, and the epidemic terminated only when, by order of the State government, Dr. Dantas vaccinated with cow-pox the rest of the inhabitants.

The conclusions of the author are,—

First.—That inoculation with variolic lymph can produce benign manifestations of the disease.

Second.—That these manifestations, though benign, are extremely contagious.

Third.—That there is no clinical difference between the result of the inoculation with the lymph of variola and that produced by contagion with the same, because he noticed that the most severe cases of small-pox occurred in persons who had contracted the disease by contact with those directly inoculated.

Fourth.—He also noticed both the variolic and vaccinic eruptions in the same individual, and following throughout the course of the disease their own particular changes.

Fifth.—He did not see a single severe case of variola develop after the inoculation with cow-pox, notwithstanding the fact that vaccination was carried on during the height of the epidemic.

Dr. Dantas believes that the inoculation with small-pox virus undergoes in the bovine family certain modifications that render it equivalent to the pure vaccine lymph, and that after passing through this culture medium it is perfectly innocuous.

Paradoxical Ægophony. (*Coimbra Medica*, March 1, 1893.) By Dr. Augusto Rocha.

A patient suffering an attack of subacute pleurisy of the right side, with an effusion of about two hundred grammes that had already begun to be absorbed, presented a rare variety of bronchophony which the author, for lack of a better name, designated as *paradoxical ægophony.* He searched in vain the works of Laennec, Woillez, Racle, Grancher, Graham Brown, Eichorst, Vierordt, and Stuart, and I myself have consulted the classic guide of Professor Da Costa, the practical manuals of Professor Loomis, of Professor Flint, and several other American and English works, but no mention is made of this strange phenomenon in any of them. The *vox caprina* or ægophony of Laennec is found located at the level of a moderate liquid effusion, but what makes the fact reported by Dr. Rocha most singular is that the bleating sound was heard on the left side of the chest, where no trace of liquid collection existed, at the inferior border of the pleuritic effusion, near the spinal column, and extending towards the left side. The author thinks the sound was transmitted through the bony connections of the spine.

BOOK REVIEWS.

International Clinics: A Quarterly of Clinical Lectures on Medicine, Neurology, Pediatrics, Surgery, Genito-Urinary Surgery, Gynæcology, Ophthalmology, Laryngology, Otology, and Dermatology. By Professors and Lecturers in leading Medical Colleges of the United States, Great Britain, and Canada. Edited by John M. Keating, M.D., LL.D., Judson Daland, M.D., J. Mitchell Bruce, M.D., F.R.C.P., and D. W. Finlay, M.D., F.R.C.P. Volume I., Third Series, 1893. Philadelphia: J. B. Lippincott Co.

Thirty-seven American, eleven British, and two French teachers of medicine have contributed to the fifty-one clinical articles published in this opening volume of the third series of these admirable books. Sixteen are included in the section on medicine; five in the section on neurology; three in that on pediatrics; ten in the surgical portion of the volume; three in the division devoted to genito-urinary surgery; seven in that devoted to gynæcology; and the other seven are distributed among the sections upon diseases of the eye, ear, nose, throat, and skin. The list of contributors is distinguished as usual by a large proportion of the famous teachers of contemporaneous medicine, names so eminent as those of Pepper, Duckworth, Musser, Ingalls, Peter, Brouardel, and Saundby among physicians, those of Putnam and Dercum among neurologists, those of Ashhurst, Greig Smith, Gerster, and Bland

Sutton among surgeons, or those of Goodell, Byford, and Mundé among gynæcologists, being ample guarantee that a composite production to which they had contributed should be no commonplace work.

The opening article in the section on medicine, based upon a case of empyema, is directed by its author, Dr. D. W. Finlay, of the University of Aberdeen, one of the editors of the volume, to the question of the treatment of the condition, stress being laid upon the necessity for free drainage, the opening being preferably made in the axillary line over the sixth rib. The lecturer impresses his view that one opening of sufficient size should fulfil all the necessities, and emphasizes the danger of washing out the pleural cavity after operation. In Dr. Pepper's lecture upon traumatic synovitis of the shoulder-joint and upon a case of insular spinal sclerosis, the remarks upon the former condition and its ultimate results to the surrounding structures are convincing that there is advantage in thus approaching the subject from its medical aspect, the general practitioner of medicine quite as often as the surgeon being brought in contact with a neglected case of the kind. The second subject of his remarks was a case of disseminated cerebro-spinal sclerosis appearing in a syphilitic shortly after a railroad injury to the back. Study of the relation of the traumatism to the sclerotic condition leads to the conclusion that there was no probable causal influence exerted by the former and that the underlying constitutional taint was more likely culpable. One cannot refrain from suggesting, however, that too little importance is attached to the effect of the traumatism in its immediate results and that there should have been considered the possibility of a meningeal hemorrhage of the cord in endeavoring to recognize the nature of the lesion underlying the symptoms at the time of the accident. Of all the medical lectures there are perhaps no better than the two devoted to the subject of gastric cancer, by Dr. John H. Musser and by Dr. Robert Saundby respectively. There is nothing especially novel in either, yet these lectures commend themselves to the reader for the clearness of exposition, and the candor with which the authors express themselves, the former as to the care of the cancerous patient, the latter as to the dangers of mistaken diagnosis in spite of the advances recently made in the study of gastric maladies.

Dr. A. Ernest Sansom, of London, in his article upon non-rheumatic arthritis calls attention to the carelessness with which the diagnosis of rheumatism is made in the most diverse joint affections; and insists upon the employment of greater care in the study of these cases with a view to the proper application of remedial agencies. In Dr. J. M. Anders's lecture upon illustrative cases of malaria the author discusses several cases which are frequently met with in our Gulf States, but which, save as importations, are unusual in the more temperate climates of the country, the quotidian type passing into the tertian and finally into the quartan in one instance, and the quotidian into the tertian, thence into the double tertian, in a second. Dr. Anders permits himself to make a rather questionable statement in relation to the hæmic condition in the first case, when he says that crescentic bodies were found lying within the red blood-corpuscles. The writer has had a considerable experience with the microscopic appearance of malarial blood, but has never observed the crescents of Laveran within the human red blood-cell, the size of these bodies in most instances precluding such a relation, were there no other reason for it. Dr. William H. Porter, of the New York Post-Graduate School of Medicine, contributes a lecture, characteristic of this gentleman's erudition, upon Bright's disease. One of the best lectures in the volume and one deserving more than the passing notice which can be accorded it is that of Dr. Thomas Oliver, of the University of Durham, upon the diseases of the thyroid body, in which he considers myxœdema, the result of atrophy of the gland, goitre, exophthalmic goitre, and hypertrophy of the organ.

Among the neurological lectures that by Dr. W. Hale White, of Guy's Hospital, is undoubtedly the first in merit. The purpose of the article is to demonstrate

the rises of temperature occurring both experimentally and clinically in case of injury or disease to the corpus striatum or to the cerebral cortex. The author also points out that after the occurrence of an epileptic convulsion and especially in the *status epilepticus*, as well as in many cases of hysteria, these temperature rises are apt to be encountered. Dr. Dercum, of the Jefferson Medical College, follows his numerous illustrations of motor affections by a presentation of the tremors met in multiple sclerosis, and in several traumatic cases.

In the surgical section the lectures which are pre-eminent for their value are those of Mr. Greig Smith, upon evacuation and drainage of the bowels after operations for obstructions, that of Mr. A. Pearce Gould, upon the surgical treatment of gall-stones, and that of Mr. J. Scott Riddell, upon flat-foot—all by British authors. It is usually argued and apparently with reason that surgery is a department in which Americans can show the English a title of equality if not of superiority. That this is true of the surgical technique and of brilliancy and daring in the performance of operations is scarcely to be denied; but it is an almost invariable rule that the British contributions to the surgical section of the *Clinics* are the best to be found in that portion of the volume. The American writers and lecturers continue in the old-fashioned style of clinical teaching by presenting each case before the class in its own light, rarely discussing the pathological relations or the surgical principles which are required to give a printed article the roundness met in other departments of medical teaching. The English, on the other hand, with but a fraction of the material embraced in the American lectures, complete a picture of the subject, which has far more value than that given by the bare statistics of the case at hand. The difference is that which might be had from listening merely to the text of the preacher in the one case, and to the text and the sermon based upon it in the other.

The section on gynæcology is undoubtedly the best of the sections in the present volume when one considers the uniformly interesting and important character of its contents. There can scarcely be drawn a line of distinction between such excellent disquisitions as that of Montgomery upon abdominal section, that of Byford upon difficult abdominal sections, that of Mann upon traumatic non-septic fever after abdominal section, that of Coe upon extra-uterine pregnancy, and that of Jackson upon retroversion of the unimpregnated uterus.

One might with some show of reason inquire why in the arrangement of the volume more uniformity of division was not maintained, why for example Dr. Ashhurst's article upon rupture of the urethra, perineal urethrotomy, and laceration of the bladder was not placed in the section on genito-urinary surgery instead of at the head of pure surgery, or why Dr. Pepper's article upon multiple sclerosis and brachial monoplegias after traumatisms at the shoulder-joint should not have been placed in the neurological section. These are, however, very minor points, and lower in no degree the value of the collection. The volume is an excellent one and shows fully the determination of the editors and publishers to keep the standard of excellence of this series upon the same plane as was originally established for it. For a practitioner whose time is best occupied by short articles, who has no opportunity for personal attendance upon lectures, there is no publication of nearly the same interest or importance as these quarterly reviews of the clinical teaching of the English and American schools.

LECTURES ON MENTAL DISEASES. By Henry Putnam Stearns, A.M., M.D. P. Blakiston, Son & Co., Philadelphia, 1893.

These lectures have been prepared as a basis for instruction in mental diseases to the medical students of Yale University. The book is intended, therefore, for students and general practitioners. The first chapter is occupied with the subject of the physical basis of thought. This is followed by chapters on hallucinations, illu-

sions, imperative concepts, insistent ideas, and delusions. An entire lecture is given up to the classification of mental diseases, an amount of space which, when we consider that the subject is in an altogether unsatisfactory condition and that the author does not clear up any of the difficulties, the subject does not demand. The remainder of the book contains descriptions of the different forms of insanity. The clinical descriptions are good, and the book will undoubtedly prove a useful one to the student.

NOTICE.

THE WILLIAM F. JENKS MEMORIAL PRIZE.

THE THIRD TRIENNIAL PRIZE, OF FIVE HUNDRED DOLLARS, UNDER THE DEED OF TRUST OF MRS. WILLIAM F. JENKS, WILL BE AWARDED TO THE AUTHOR OF THE BEST ESSAY ON

"*Infant Mortality During Labor, and its Prevention.*"

THE conditions annexed by the founder of this prize are, that the "prize or award must always be for some subject connected with Obstetrics, or the Diseases of Women, or the Diseases of Children;" and that "the Trustees, under this deed for the time being, can, in their discretion, publish the successful essay, or any paper written upon any subject for which they may offer a reward, provided the income in their hands may, in their judgment, be sufficient for that purpose, and the essay or paper be considered by them worthy of publication. If published, the distribution of said essay shall be entirely under the control of said Trustees. In case they do not publish the said essay or paper, it shall be the property of the College of Physicians of Philadelphia."

The prize is open for competition to the whole world, but the essay must be the production of a single person.

The essay, which must be written in the English language, or if in a foreign language, accompanied by an English translation, should be sent to the College of Physicians of Philadelphia, Pennsylvania, U. S. A., before January 1, 1895, addressed to Horace Y. Evans, M.D., Chairman of the William F. Jenks Prize Committee.

Each essay must be typewritten, distinguished by a motto, and accompanied by a sealed envelope bearing the same motto and containing the name and address of the writer. No envelope will be opened except that which accompanies the successful essay.

The Committee will return the unsuccessful essays if reclaimed by their respective writers, or their agents, within one year.

The Committee reserves the right not to make an award if no essay submitted is considered worthy of the prize.

JAMES V. INGHAM,
Secretary of the Trustees.

August 1, 1893.

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ORIGINAL COMMUNICATIONS.

SOME SIMPLE METHODS FOR THE ANALYSIS OF THE GASTRIC CONTENTS.

BY A. LOCKHART GILLESPIE, M.D., F.R.C.P. Ed.,
Medical Registrar, Royal Infirmary, Edinburgh.

It is not my intention to go fully into all the different tests for acids which have been described by observers during the last few years. As a rule each is lauded by its discoverer as the only one of any virtue whatsoever, while experience teaches that the majority are incapable of any wide or general application. I propose simply to describe the tests which I have found most useful and accurate during several years of clinical and experimental work, and to give what I regard as some practical simplifications of the different processes.

The routine practice in investigating the contents of the stomach should be as follows:

1. Note the color, the odor, and the character of the fluid obtained, with the time after food, the nature of that food, and whether any water had to be added before the stomach-tube would act.
2. Filter some of the contents.
3. Determine the total acidity.
4. Test for the presence of free acid.
5. If free acid be present, find out if it is hydrochloric acid.
6. Test for the organic acids.
7. Determine the presence of pepsin.
8. Investigate the nature of the proteids.
9. Test for alcohol, sugar, starch, blood, or abnormal substances.

All these tests, with the exception of the eighth, may be applied both

to the filtered and the unfiltered contents. Van Jaksch has pointed out that the unfiltered fluid often materially exceeds the filtered in acidity. For clinical purposes it is sufficient to make qualitative estimations of most of the constituents, but the total acidity and the free acidity should always be calculated quantitatively.

I will now consider the different processes *seriatim.*

1. The most important part of the preliminary note is that pertaining to the time and nature of the foregoing meal. What is called the normal acidity of the gastric contents is purely a relative term. It varies, sometimes widely, with the constituents thereof. The amount of the contained food does not itself influence the acidity per cent.; its character, however, does, and for the reason that proteids, so to speak, absorb free hydrochloric acid, and thereby allow a further secretion of it. This matter is discussed fully in a paper read before the Edinburgh Medico-Chirurgical Society in January, 1893, and which has lately been published in the *Edinburgh Medical Journal.*

2. Neither for the estimation of the total acidity nor for the detection of free hydrochloric acid is filtration of the gastric contents necessary. As a rule, however, it is more convenient to work with the filtered contents.

3. Very few words will suffice to describe the precautions to be observed in estimating the total acidity. By far the easiest way is the common titration with either a deci- or a centinormal solution of some alkali, caustic soda for choice, using phenol-phthalein as the indicator. The great advantage that phenol-phthalein has over cochineal and other vegetable or animal dyes is that its color is altered absolutely on the change from alkali to acid. This may seem a small matter, but, especially when the fluid to be tested is colored, it is one of considerable importance. The color of an alkaline solution of cochineal in water is changed very materially on the addition of an acid; but, if the excess of acid be very small and the original fluid colored, the exact point of neutrality is often indeterminable. Litmus is not sufficiently delicate to answer the purpose, unless used by the wearisome method of dipping first a piece of red then a piece of blue litmus paper into the fluid after each addition of the soda. The only drawback to the use of phenol-phthalein is the fact that its alteration in color cannot be depended on in the presence of any ammonium salts. The presence of proteids in the solution to be tested does not seem to alter the amount of acidity as revealed by this reagent.

4 and 5. Of the many different tests for the indication of free acids the majority may simply be mentioned: Congo red, eosin, methyl violet, gentian violet, smaragd green, malachite green, vert brillant, fuchsin, tropæolin OO (dimethyl orange, or l'orange poirier), and benzo-purpurin. Of these Congo red and tropæolin are the most delicate. If used to test for free acid, the most handy method is by means of small strips of filter-paper saturated in the reagents. Endeavors have been made to apply these substances to the quantitative estimation of the free acids present, but with

little result, the presence of combinations of proteids and acids falsifying the deductions. Four tests, however, of very much more value remain. They are only applicable to the detection of free mineral acids. (*a*) Günzberg's reagent is the best known of these and the most delicate. It is composed of phloroglucin two, vanillin one, and absolute alcohol thirty parts, or, as Boas recommends, phloroglucin two, vanillin one, and alcohol (eighty per cent.) one hundred parts. (*b*) Very similar in its results is the resorcin test of Boas, composed as follows: Resorcin, five grammes; white sugar, three grammes; dilute alcohol to one hundred cubic centimetres. Both these tests are applied in a similar manner. A drop or two of the fluid to be tested with an equal quantity of the reagent is placed in a porcelain dish and dried at a temperature below 110° C. This is best done by cautiously heating the dish over a flame, keeping it moving throughout. If free mineral acids be present both give a bright red color on drying, the resorcin red being, however, more scarlet in tint than the other. Both the tests may be used in the form of papers soaked in the reagents. (*c*) Mohr's, or the sulphocyanide test, is performed as follows: Four parts of a concentrated solution of sulphocyanide of potash are added to one part of a similar solution of ferric acetate, then water up to twenty-five parts. A few drops are placed in a porcelain dish, a drop or two of the solution to be tested poured down the side; at the point of contact a dark-brown ring forms if free HCl be present. The reaction is not disturbed by the presence of salts, nor by proteids, unless in great excess, but it is by no means as delicate as either of the two preceding methods. (*d*) Liebermann's reaction for free hydrochloric acid depends on the coloration formed when any proteid substance is dried in the presence of free HCl. This color varies from violet to dark purple, is very characteristic, and serves to show the presence of minute traces of the free acid.

Of these tests, the phloroglucin-vanillin is the most delicate and the most generally applicable. Ewald,[1] Leo,[2] Günzberg,[3] and Sansoni[4] have given tables of the relative sensitiveness of these tests. The following tables compiled from my own observations will suffice to show the differences. In the first solutions of HCl in water were used.

Reagent.	HCl per cent.					
	.054	.0298	.027	.0152	.0108	.0072
Phloroglucin-vanillin...	+	+	+	+	+	+
Resorcin.....	+	+	+	±	—	—
Sulphocyanide.....	+	+	+	+	±	—

+ positive reaction, ± doubtful, and — no reaction.

[1] Virchow's Archiv, ci., civ.
[2] Krankheiten der Verdauung, 1891.
[3] Centralbl. für Klin. Med., ii. 913.
[4] Annali di Chimica, ix. p. 329.

I then made up a solution of hydrochloric acid with proteids, none of the acid being in a free state. The acidity of this fluid was .108 per cent. Phloroglucin-vanillin when dried with it gave a slight reddish-brown color, but no bright crimson. Resorcin gave a yellow, while Mohr's test gave no reaction.

Now to a solution of HCl one per cent. peptone was added, and the mixture tested gave the following result:

Reagent.	HCl per cent.		
	.0252	.018	.01026
Phloroglucin-vanillin	+	+	+
Resorcin	—	—	—
Sulphocyanide	+	+	—

That is to say, then, that Günzberg's test is still the most delicate. Incidentally I noticed that tartaric acid produces a red on evaporation with Günzberg's reagent. In order to ascertain, therefore, if any decided reaction occurs I performed some experiments, which are embodied in the following table:

Tartaric Acid.	Phloroglucin-Vanillin.	Resorcin.	Sulphocyanide.
.3 per cent.	—	—	No contact reaction, light yellow color.
.709 per cent.	+ Light red.	—	— Light yellow.
2.025 per cent.	+ Pink, becoming yellow.	—	— Yellow.
45 per cent.	+ Yellow.	+ Pink-brown after.	— Yellow.

Günzberg's reagent then gives a bright pink with tartaric acid, but only in considerable concentration, neither Boas's nor Mohr's tests showing any decided change.

A very delicate way of bringing out the distinctive color in both the phloroglucin-vanillin and the resorcin tests is the following: One or two cubic centimetres of the reagent are placed in a porcelain dish, and dried so that a thin layer is spread over the surface. This may be done by gentle movement over a flame, care being taken that the contents are not charred. An evaporating basin thus prepared will suffice for testing several specimens. A drop of the fluid examined is placed by means of a glass rod on the prepared surface of the dish and dried. The edges of the drop will soon show the characteristic crimson color if free mineral acid be present. By this means the presence of free HCl in a .0027 per cent. solution can be demonstrated even if only one drop be used.

Another point worth mentioning here is the effect that the presence of organic acids has on the tests for free HCl. The particulars of my experiments need not be repeated. Neither lactic acid nor acetic acid up to four per cent. has any effect on the delicacy of Günzberg's test. If, however, these acids are present in greater proportions, which is seldom or never the case in nature, the finer distinctions of the test are lost.

So much, then, for the free hydrochloric acid. What about that combined with the proteids, the proteid hydrochlorides? This is a subject on which a volume might be written. Every one concedes nowadays that such a combination exists, but how to estimate it is still a matter of controversy.

It has been shown by many that if a small quantity, less than six and a half per cent., of free HCl be added to a proteid substance the resulting mixture affords none of the tests for the free acid. It is obvious that if the total acidity of any fluid and the amount, also, of either the free or the loosely combined acid be known, subtraction from the total of the one estimated will give the sum of the other. The consideration of the fallacies introduced by the presence of the fatty acids may be left out for the present. Mintz[1] has applied Günzberg's test quantitatively in this matter. He adds a decinormal solution of soda drop by drop to the solution to be tested until no reaction occurs on evaporation with phloroglucin-vanillin. He can then calculate the acid which has been neutralized by the amount of soda used. For his purpose, of course, the alkali must combine with all the free acid before it attacks the proteid hydrochlorides, a point which Mintz claims to have proved by special experiments, but a point about which I have grave doubts. The total acidity, previously ascertained in the usual way, minus the free acidity gives the acidity combined with proteids and that due to acid salts.

The reversed process described by Ewald in his book on stomach diseases whereby the proteid hydrochloride, if no free HCl be present, can be estimated by adding a decinormal solution of HCl until Günzberg's reaction is positive, seems to me to be erroneous. And for this reason: each proteid, as I have shown, has its saturation point beyond which no further HCl will combine.[2] In adding the free HCl to the solution, if any proteids present are not saturated with acid, as may readily be the case if the specimen be obtained soon after a meal, or after a meal consisting largely of proteids, some of this free acid will combine at once and vitiate the result. The absurdity of this part of the method is very apparent. The first method is correct if a small margin for error be allowed, but it is laborious. The testing with the phloroglucin-vanillin after each addition of soda, however, may be simplified by using the reagent in the way described above, spread over a plate or evaporating basin, a drop being placed on the plate in regular order on each occasion.

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[1] Wiener Klin. Wochenschrift, 1889, No. 20; and 1891, No. 9.

[2] Journal of Anatomy and Physiology, vol. xxvii., 1893.

Boas has modified this method by the previous extraction with ether and the use of Congo red as an indicator. Congo red, however, does not discriminate accurately between free and organically combined hydrochloric acid.

Leo[1] has made use of the action of free hydrochloric acid on calcium carbonate to get rid of the fallacy sometimes caused by the presence of acid salts.

The most accurate of all the methods for estimating the free and combined hydrochloric acid is undoubtedly that devised by Sjöqvist, as modified by Salkowski. This process depends on the fact that chloride of barium is soluble, while the carbonate is insoluble, in hot water. On the addition of barium carbonate the hydrochloric acid, of course, combines to form chloride of barium, while the organic acids are decomposed and form barium carbonate. They can thus be separated, the barium chloride caught on a filter-paper, purified if necessary by converting it into the carbonate and again into the chloride. The chloride can then be titrated with silver nitrate. This process, however, although not very laborious, is still one fitted only for a laboratory; and it even is not free from errors, as it is conceivable that if the inorganic chlorides be large in amount, the amount of barium chloride obtained will not accurately represent the total HCl.

I now come to the consideration of a vexed question. It is well known that free hydrochloric acid is volatile, but until lately the fact that the presence of a proteid in a solution of this acid prevents the volatilization of some of the acid had not been fully recognized. Hayem and Winter in France, taking advantage of this fact, devised an elaborate and complicated method of estimating the chlorine contained in a fluid which also contained proteid substances. All the chlorine in one specimen of the fluid is converted into chloride of sodium by the addition of an excess of carbonate of soda, and by then fusing the mixture. The chloride is titrated with nitrate of silver. The inorganic chlorine is estimated in a similar quantity of the fluid after simple incineration by a like titration. A third specimen, and this is the important part of their process, is dried at 100° C. for some hours, then the chlorine which remains is treated in the same way as in the first. The inorganic chlorine subtracted from the chlorine left after drying gives the amount of the chlorine present combined with proteids. Subtraction of total left after drying from the total chlorine indicates the free chlorine. A simple calculation suffices to determine from these the absolute weight of HCl involved.

The question at once arises here, Is the amount of hydrochloric acid combined with proteids unchanged by evaporation at 100° C.? It is not difficult to answer so far, for if a solution of proteid and acid, in which the proteid is in large excess, be titrated before and after evaporation, the acidity remains the same; that is to say, that none of the acid is free, and none

[1] Centralblatt für die Med. Wissenschaft, 1889, No. 26.

volatilizes. Again, if a solution in which the acid just reaches the saturation point of the proteids present, as shown by Günzberg's reagent, is evaporated, no loss of acidity occurs. The moment, however, that free hydrochloric acid is present, as well as that combined with proteids, an element of uncertainty appears, for, as the evaporation proceeds, the water is first driven off, leaving at the end a comparatively strong solution of free hydrochloric acid. This free acid acts on the proteid, and before volatilization splits some of it into amido-derivatives and coloring matters. In this way there is a small loss, for these lower bodies cannot hold the hydrochloric acid in the same manner as their proteid parents; but if the amount of albumen or other proteid originally present be calculated, it will be found that the acidity left is very similar to or almost identical with that independently determined, by Mintz's process, to be the correct proportion for saturation of the proteid. There is really, however, a slight decrease in the amount of free hydrochloric acid and a slight excess in the proteid-hydrochlorides in the actual quantities found by this method.

Now, Hayem and Winter calculate the amounts of HCl from an estimation of the chlorine. They thus get rid of any fallacy inseparable from the testing of the acidity by reason of the presence of organic acids. But it seems to me that the following plan is extremely easily carried out, that it is approximately correct, and that the errors can be compensated for. Instead of calculating the chlorine, simply the acidity before and after evaporation is estimated; that is to say, that after applying Günzberg's test to a portion of the fluid to see if there is any free hydrochloric acid present, ten cubic centimetres of the fluid are evaporated on a water-bath to complete dryness, the acidity estimated with a soda solution and subtracted from the total acidity, which has been previously ascertained in ten cubic centimetres of the original solution. If there is no coloration of the phloroglucin-vanillin to start with, and the acidity is the same before and after evaporation, there can be no free acid present of any description, save possibly lactic acid. If the solution gives the special test of lactic acid,—a canary-yellow with Uffelmann's carbolo-ferric reagent,—it may be removed from ten cubic centimetres by thorough shaking with ether and the remainder evaporated to dryness, when the total acid left subtracted from the original acid will give the amount of lactic acid removed and the proteid-hydrochloride remaining. If the acidity is not the same after evaporation as before, but still no free hydrochloric acid is present, the decrease must be due to volatile acids of the acetic and butyric series. On the other hand, if free hydrochloric acid prove to be present, the acid driven off by evaporation consists of it, and it may be of some volatile organic acid also. Test with Uffelmann's reagent; the resulting color will at once reveal the presence or absence, and approximately the amount, of the organic acid. If lactic acid should prove to be present, it may be removed as noted above. It is well to remember that as free hydrochloric acid is antiseptic, and acetic, lactic, and butyric acids the outcome of fermentation, the presence of the first in

even small quantities is a sufficient reason to suspect the absence, except in minute amounts, of the other acids, while the converse is also true.

Allow me, now, to state briefly what can be learned from this simple process. 1. The total acidity. 2. The presence or absence of free hydrochloric acid. 3. The amount, approximately, of the hydrochloric acid combined with proteids, or, in other words, the sum of work hitherto done in the digestion of proteids. 4. The amount of the free hydrochloric acid, or the sum of work still able to be performed towards the digestion of proteids. 5. The presence, nature, and, in cases, the amount of the organic acids,—*e.g.*, a sign of the fermentation present in the stomach.

The following is an exact copy of my notes on the analysis of the stomach contents from a case of dilated stomach:

Mr. K. Stomach contents, January 3, 1893. Revalenta at 5 A.M., boiled milk, bread, and an almost raw egg at 8.30 A.M. Undiluted contents removed at 11.30 A.M. Yellow sour stuff, acetous smell. Filtered.

	Per cent.
Total acidity	.244
Combined acidity	.208
Free acidity	.036
Free HCl	0
Lactic acid	0
Acetic acid (Brown with Uffelmann)	.036

No alcohol. Albumen .25 per cent. Lower proteids present. Sugar in large quantities.

I imagine that these facts are quite sufficient on which to found a diagnosis as to the state of the gastric chemistry in this case.

Physiologists in laboratories and clinicians in hospitals may praise this or that method as being as unrivalled for accuracy as for complexity. Before much good can be done practically a rapid, easy, and accurate method must be found. The one detailed above is easy, is rapid, and is accurate enough to suit my purposes, and by it I have been enabled to gain an insight into the faulty chemistry of the dyspepsia in many cases which sufficed to suggest a rational and a successful mode of treatment. All the extra apparatus required is a small burette, one or two small evaporating-dishes, a pipette to hold ten cubic centimetres, a spirit-lamp, and a filter. An impromptu water-bath can be made out of a pan placed on the fire; the evaporating-basin floats on the surface of the water. I have, before now, dried ten cubic centimetres of the contents of a stomach in a saucer placed on hot-water pipes used for heating purposes. A short time in a warm oven will suffice. Unless overheated the length of time over two or three hours during which the fluid is left to dry is immaterial, and herein is another advantage,—while the specimen is allowed to dry there is time and opportunity for other things.

Let me now consider briefly the objections that have been taken to the process of driving off free HCl at the boiling-point of water.

If no free HCl be present evaporation at 100° C. does not alter the acidity. If, however, the hydrochloric acid be present both in the free state and combined with proteids, a possible fallacy has been pointed out. As the solution is evaporated down the acidity becomes stronger, until at last it almost equals the strength of the pure acid. That is to say, then, that it is not so volatile as water. The strong acid left, as I have mentioned above, chars the proteids before volatilization, giving rise to the violet color which is the basis of Liebermann's reaction. The objection urged, therefore, to the method is the following: the free HCl, on evaporation, chars some of the proteid; in so doing diminishes the amount of acid driven off, and thus gives too low an estimation of the free acid. In practice, however, I do not think this holds good to any extent. There is no doubt that if there is a great excess of free acid considerable decomposition of the proteids will take place, but in stomach contents the percentage of free acid is, except in rare cases, exceedingly low. Again, the splitting up of the proteid molecules into amido-derivatives and coloring matters is due to the presence of free hydrochloric acid. Is it not conceivable that in so doing the acid partly forms other chlorine compounds, and from the gain in free acidity due to the breaking up of the proteid hydrochlorides compensates for the loss brought about by the charring?

The following experiment seems to make this clear: .604 gramme of dried egg albumen was weighed in a capsule at 110°. Capsule 20.125 grammes + .604 gramme = 20.729 grammes. .025 gramme HCl was added, dried at 110°. Weight 20.753 grammes. No Liebermann. .02448 gramme more HCl was added, dried at 110°. Weight 20.766 grammes. Slight Liebermann.

That is to say, that the addition of four per cent. of acid did not suffice to saturate the proteid, while the addition of 8.1 per cent. (8.7 per cent. if due deduction be made for ash) was more than sufficient, .0124 gramme of free HCl being driven off. .009 gramme of free HCl was now added, and the capsule weighed again. The weight was only one milligramme more. Excess of free HCl was then added, and the weight of the capsule was increased by nearly twenty milligrammes. That is to say, then, that if there is great excess of free HCl, the amount recovered after evaporation will be too small. If the excess of HCl, however, be only moderate, the results are nearly correct.

On each occasion after weighing the capsule the contents were tested with Günzberg's reagent with a negative result.

In a check experiment the acidities also were tested, and corresponded to the results by weight.

In a former paper[1] I have shown that different proteids combine with different quantities of HCl, and that the important factor in this problem is the proteid, not the acid. If after evaporation at 100° the acid left com-

[1] Journal of Anatomy and Physiology, loc. cit.

bined with a certain weight of a proteid substance does not vary when different quantities of free hydrochloric acid have been added beforehand, the only varying figure is the sum of the free acid driven off. And if the amount of combined acid remains the same both in the specimen in which free acid is just discernible and in one in which the free acid is present in larger but in reasonable quantity, then surely the evaporation method can be depended on. Now, I have found this to be so in many cases, and am convinced that though the evaporation methods may seem to have fallacies they give very constant and therefore approximately correct results.

Among the objections urged to Winter and Hayem's procedure, Kossler[1] states that the free acid is too small in amount and that the combined chlorine is too high. Rosenheim[2] thinks that the presence of ammonia in the gastric contents and the formation of chloride of ammonium would vitiate the results. He is of opinion that .1 to .15 per cent. NH_3 is always present; Kossler, on the other hand, considers the presence of ammonia infrequent. Anyhow, if the acidity alone be tested the ammonium chloride has no influence. Rosenheim,[3] Langermann,[4] and Hofmann[5] all are of opinion that the free chlorine found is too small in amount, the combined too large. Biernacki[6] obtains correct results from this method in artificial digestion experiments, but fails to get such good returns from stomach contents, due he thinks to the presence of acid phosphates. Kellogg,[7] in an elaborate paper published lately, gives the results of a large number of analyses after Hayem and Winter, in whose method he has the most thorough confidence. He reduces all his dyspepsia cases to an algebraical formula and treats them accordingly. He does not seem to be aware of any adverse criticisms with regard to the method, but he has obtained very regular and striking results.

With regard to the question of the acid salts in the stomach contents, chiefly acid phosphates, on which such stress has been laid by the German observers, I cannot see that the slight addition to the total acidity and to the combined acidity caused by their presence invalidates the deductions obtainable from the results. Their presence in the total and combined acidities is a constant quantity and does not vitiate the estimation of the free acid.

6. Testing for the organic acids is best done with Uffelmann's carbolo-ferri reagent, but it should be remembered that salts of the fatty acids give the same reaction as the acids themselves. To distinguish between the two, if

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[1] Zeitschrift für Physiol. Chemie, Bd. xvii. S. 91.

[2] Centralbl. für Klin. Med., Nr. 39.

[3] Deutsche Med. Wochenschr., Nr. 13 u. 14.

[4] Virchow's Archiv, Bd. cxxviii.

[5] Schmidt's Jahrbuch, Bd. ccxxxiii. S. 268.

[6] Centralbl. für Klin. Med., Nr. 20.

[7] Methods of Precision in the Investigation of Disorders of Digestion, Battle Creek, Mich.

deemed necessary, recourse may be had to the ethers of the acids by boiling a portion of the fluid tested with caustic potash and absolute alcohol. The salts do not form these ethers.

7. The determination of the presence of pepsin need be done only in very exceptional cases. Pepsin is rarely absent from the stomach contents. The amount of quackery indulged in in the prescribing of pepsin preparations is marvellous.

8. No description of the tests for the different proteids is necessary here, and the tests (9) for alcohol, sugar, starch, etc., are simple and in every text-book. No trust should be put in the sulphuric acid and bichromate of potash test for alcohol, or that substance will appear in the stomach or urine of the most ardent tetotaller.

It of course savors of heterodoxy for any one to praise a method which he himself knows not to be absolutely accurate, but there are two sides to this as to all other questions. It may be expedient to use such a method on account of the saving of time and trouble, provided the results are uniform even if slightly erroneous. How very few clinicians will take the trouble to estimate albumen in urine by any other than rough and inaccurate methods, methods in which, however, the error is probably constant! This must be my apology for the above.

ALBUMINURIA NOT OF RENAL ORIGIN.

BY PROFESSOR BOUCHARD,

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During the discussion before the Academy of Medicine after Professor Germain-Sée's communication on Albuminuria, both the writer of the paper and Dr. Dujardin-Beaumetz brought up some important points from their experience, which demonstrate certain facts that we have endeavored to demonstrate for some time back. With some slight variation the idea of auto-intoxication and the multiplicity of poisons, when the kidney is diseased, have been shown from time to time. Numerous clinical facts have proved these ideas to be true. If you inject into an animal the urine of another one who is suffering from uræmia, you will find that the urine of the second animal has lost a certain portion of its toxic properties, and it may be no more poisonous than distilled water. The poisons have not passed through the kidney, which allows the watery elements to filter through, and the dangerous poisons to remain in the organism, where they manifest themselves by the signs peculiar to the kind of poisoning which predominates. An example of this is the contraction that is seen in the pupils of cholera patients during the period of anuria.

The most rational treatment tries to arrest at its source the poison, or tries to find a means of elimination for such products, or else to find antidotes to them.

Among the many plans of treatment employed, milk diet is most important, for many reasons which we have frequently emphasized. It is all the more so, as it is an insufficient aliment. It must not be supposed that because one quart of milk is useful two quarts will be twice as good and five quarts five times as effective. Milk given as an exclusive drink or food diminishes the overcharging of the system where the emunctory function is being poorly performed, and the patient is benefited by the introduction of a smaller amount of food and liquid into his organs. This improvement is owing more to the insufficiency of the regimen than to the milk alone. We can get just as good results from eggs, which are claimed to modify the albuminuria. But what does this matter, after all? The albuminuria is not the disease. The quantity of the albumin gives us information of the extent and depth of the renal lesion. It is an element of diagnostic and prognostic value, but it is not a serious condition in itself. If the nephritis increases, the albumin will increase also; but if by a certain regimen you make a large quantity of albumin pass through the kidneys, the kidney will not be any more inflamed for that fact alone. The intensity of the albuminuria is an indication of the morbid state, but it is not the cause of an aggravation of the disease. If albuminuria has become a pronounced symptom, it is because we all know that it is very often the first sign of a serious condition of the kidneys. Uræmia and a chronic diseased state, these are the two things that we fear when we see albumin, but by no means is it sure that either one of these states will follow albuminuria.

Not all albuminurias of renal origin will bring about uræmia nor a chronic diseased state, but only albuminuria of renal origin will cause autointoxication and death through it. It is therefore very important, for our prognosis at least, when we find albumin, to determine if it is of renal origin. And if it is true that a great future belongs to pathogenic therapeutics, this determination will become important for treatment also.

We do not propose to indicate the means by which we can find out if an albuminuria is of renal origin or not, but simply to mention some groups of diseases that but little attention has been given to, although they are very common, and in which the albuminuria found is not of renal origin, or rather, to speak more correctly, the albuminuria cases in question depend on a morbid state or functional trouble of other organs than the kidneys. Whether it be admitted or not that there is a cutaneous albuminuria, there is one that is of a reflex order provoked by an excitation of the cutaneous nerves. We have seen this by applying a compress of chloroform to an animal, and in man after rubbing him with turpentine; and during some studies made by M. Kerahdzian, at St. Louis Hospital, on patients suffering from itch, and who were being treated in the routine way (by frictions

with green soap and sulphur baths), we found in the urine of the majority of the cases albumin with some blood-globules.

These are not cases of albuminuria of toxic origin, caused by the absorption of a drug such as can be produced by injecting chloroform under the skin, or that which is observed after inhalations of chloroform. The rapidity with which this form of albuminuria comes and goes will not admit of such an explanation. We can produce the form of trouble we are speaking of by cutaneous faradization, or by faradization of the sciatic nerve, or again by opening the peritoneum. These are cases of albuminuria by nervous excitation.

These clinical facts and experiments have been confirmed by Dr. Capitan. This form of albuminuria will of course disappear before any treatment is given, and the prognosis is excellent.

We are also disposed at times to be frightened by other forms of albuminuria which are of greater duration than these and return often in the same patient. Examples are seen in the course of such diseases as gout and diabetes, and, we may add, obesity. What increases the fear in such cases is the fact that in the same maladies a genuine chronic nephritis does come on and go through its evolution, often with a fatal termination.

When we see albumin in gouty or diabetic cases we are apt to think it is the beginning of a fatal disease, but it is by no means so. Most often in such patients the albuminuria does not dominate the first disease, but associates itself with the malady and gets better as it does, and goes away entirely if the first does. Albuminuria may be frequently seen at first in gout and diabetes, and it may disappear in the acute and chronic stages of the disease. We have seen it stay away for years in such cases, while the principal disease developed progressively. It also has not the constancy of nephritis, nor is it accompanied by the cardiac, hemorrhagic, and dyspnœic troubles of the last disease; so that there are then in the diseases that relate to slowing up of nutrition, and outside of permanent albuminuria seen with chronic nephritis, albuminurias that have no relation to renal lesions, or at least the renal origin is not proven. These curable forms are more common than the gouty and diabetic nephritis of renal origin. We can understand this by some statistics: Albuminuria is seen 26 times in 100 cases of obesity, 58 times in 100 cases of gout, and in diabetes 33 in 100, by my account. Garrod gives ten, Senator eleven, Smoler seventeen, and Von Dusch twenty-eight per cent. in diabetes.

There is another pathogenic variety of albuminuria that is very common, and has an intensity that causes us to think that it is due to kidney-disease. I mean dyspeptic albuminuria, and more particularly that form that is accompanied with dilatation of the stomach. The frequency of this albuminuria is twenty-one per cent. Sometimes there is only a trace of albumin to be found, and at others as much as four grammes of albumin in a quart of urine. But there are no cylindroids or casts, and it is a curable condition. Indeed, we may say that it cures itself every day. There may be

none in the morning, and it will appear after eating or exercise, and follow the symptoms of the dyspeptic trouble, being cured completely as the stomach disease is cured.

One word here on what we call "hepatic albuminuria." In 1876 Murchison wrote, "There are reasons to believe that albuminuria can be produced by hepatic trouble, outside of any lesion of the kidney." Since then we have brought arguments and experiments to prove that this is true. Two rabbits were injected with milk, one of them through a vein of the ear, and the other by a branch of the portal vein. The first eliminated casein by the urine, and the urine of the second one did not contain casein, but it did contain albumin. The liver, then, can elaborate certain substances of an albuminoid nature so that albuminuria will result. This possibility pathology shows us is a reality. We find twenty-one patients in a hundred who have gastric dilatation have also albuminuria. We also found twenty-three times congestion of the liver, and noted that when this was so that albuminuria was three times as frequent in such patients. A fact common to all the diseases produced by impaired nutrition is the frequency with which we find hypertrophy of the liver. In one hundred cases of obesity, for instance, where albuminuria is usually found in eleven cases with normal liver, when there was hypertrophy of the liver we got sixty-eight per cent. of them with albumin.

Again, in one hundred diabetics with normal livers there will be sixteen cases of albuminuria, and in one hundred who have enlarged livers there are sixty-four with albumin.

Among one hundred cases of gout with normal livers, forty-three of them will have albumin, but in the same number of gouty cases (one hundred) with hypertrophied liver there will be one hundred cases of albuminuria.

We must say a word about intermittent albuminuria, which is so interesting both in a clinical sense and for pathological reasons. But it must not be understood that there is one intermittent albuminuria, for all cases of albuminuria that are not of renal origin are intermittent, and even in nephritis are there not a number of them, at least at first, that are intermittent? Cardiac albuminuria is intermittent, and the dyspeptic form is particularly so. So are the albuminuric cases seen in all the maladies producing impairment of nutrition.

The larger number of intermittent albuminuria cases is seen in adolescents, or in children during the period of growth, and when this is going on poorly owing to dyspeptic troubles.

When the child grows rapidly, or when the food taken by it is of bad quality and is not properly assimilated by the system, the new elements borrow from the older tissues. The new-forming bone, for instance, takes its phosphorus from the nervous system. These new elements are incompletely formed, and the older ones are deteriorated. Everything suffers. Albuminuria is one of the symptoms of this complex pathological state,

and if it is watched it will be found to be absent in the morning and to reappear after food or exercise.

It is evident from all this that treatment ought to vary according to the pathogenic conditions observed in these different forms of albuminuria. Guided by a knowledge of therapeutics and hygiene, the physician should examine carefully for any disease of the kidney or the heart, and remember the symptoms attending gout, diabetes, and obesity, and not bother so much about the indifferent symptom called albuminuria. In a word, we should not fight this symptom, but the pathogenic condition that brings it about.

THE COMPLICATING CONDITIONS, ASSOCIATED DISEASES, AND MORTALITY-RATE IN ERYSIPELAS.[1]

BY JAMES M. ANDERS, M.D., PH.D.,

Professor of Medicine and Clinical Medicine at the Medico-Chirurgical College; Physician to the Philadelphia Hospital, etc.

DURING the year just past I have been engaged in conducting an investigation into the disease erysipelas. A portion of the results obtained from these researches were given in a recent paper on "The Seasonal Influences in Erysipelas, with Statistics."[2] More recently I read an article on "Some Points in the Etiology and Clinical History of Erysipelas, with Statistics," before the Section on the Practice of Medicine of the American Medical Association, at its last meeting, in which article additional results were reported. To some of the conclusions reached in the latter paper I desire to make brief reference presently. While collecting data with a view to determining the duration of erysipelas, I had occasion to inquire into the effect of complications on the general course of the disease. Upon this point the following inferences may be found in my last paper:

"The average duration of the affection was computed in eighteen hundred and eighty cases and found to be (including relapses) 25.13 days. At any period of life, according to these observations, the stay in a hospital or the duration of a case in private practice was lengthened almost indefinitely when the patient had been previously in an enfeebled condition on account of chronic disease and when complications existed. The average course was found to be much less in uncomplicated cases occurring in persons under forty years, which is the time of life corresponding with a preponderating proportion of cases,—viz., about fourteen days."

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[1] Read at the Pan-American Medical Congress, Section of Medicine, September 6, 1893.

[2] Read at the meeting of the American Climatological Association, 1893.

These results also point strongly to the important practical facts that "erysipelas in a typical form is a self-limited disease; that the length of the attack is greatly influenced by the age of the patient *per se*, its average duration in persons over fifty years being considerably longer than in younger subjects. Sex has no influence in this direction."

I have directed attention to the influence of age upon the course of the disease—a factor that is especially operative at a period of life when cases are relatively infrequent—for two reasons: first, because it is an interesting and novel fact; and, secondly, that the other and more notable factors, as complications, etc., shall not be overrated.

Respecting those associated diseases that are not to be classed as true complications additional data will in this connection be adduced. In my published article, before alluded to, may be found an analysis of sixteen hundred and sixty-five cases, and the data show which affections predispose most potently to erysipelas, as well as the comparative frequency of their occurrence, as follows. In the course of chronic leg ulcers sixty-seven occurred; in chronic pulmonary tuberculosis and chronic nephritis, fifteen each; in chronic rheumatism, fourteen; in organic heart-disease, ten; in urethral stricture, six; in syphilis and synovitis, five each; in asthma, chronic pleurisy, and chronic alcoholism, four each; in bone necrosis, malaria, locomotor ataxia, senile debility, and puerperal state, three each; in typhoid fever and sciatica, two each, these being 7.8 per cent. of the total number of instances.

The result just narrated fitly corroborated the broad fact—one long since appreciated by the profession—that certain conditions and diseases increase the liability to the complaint.

I purpose to present, in the next place, the results obtained from a study of a series of sixteen hundred and seventy-four cases which were analyzed with particular reference to complications. Of the latter there were: abscesses, one hundred and five (of which the following only were classified: of eyelids, five; abscesses with ulcers, two; of leg, three; of foot, three; of finger, scalp, elbow, glands at angle of jaw, one each); rheumatism, twenty; pneumonia, seven; catarrhal pneumonia, two; pleuritis, seven; delirium tremens, ten; delirium, seven; albuminuria, eight; acute nephritis, six; synovitis, five; phlebitis, seven; diarrhœa, five; tonsillitis, three; otitis media, pharyngitis, acute bronchitis, œdema of larynx, two each; angina pectoris, iritis, epistaxis, scurvy, hemiglossitis, neuralgia, sciatica, mastoiditis, pyæmia, endocarditis, eczema, jaundice, paralysis, meningitis, carbuncle, hysteria, apoplexy, insanity, arthritis, diphtheria, followed by leg ulcer and repeated hemorrhages, one each. Not a few of the complications which are mentioned by authors of modern text-books and other recent writers as being leading ones are, according to the results of these observations, actually rare. On the other hand, certain complicating conditions not emphasized in medical literature occur relatively frequently, notably acute articular rheumatism. With reference to this latter affection

it should be pointed out that the attention of the profession has not hitherto been directed to the fact that it is quite frequently associated with erysipelas. It is seen that, according to the above table, it ranks next to abscesses in point of frequency, and that it is present twice as often as delirium tremens, which stands third as to frequency of occurrence. In only three instances did the rheumatic attack precede the appearance of the erysipelas by two or three days. The symptoms of rheumatism usually came on several days after the onset of erysipelas. I will not at this time venture an opinion to explain why acute articular rheumatism should develop in the course of an existing erysipelas as often as would be indicated by these researches. So long as the specific agent on which rheumatism depends is not known, so long must we remain in ignorance of the true explanation of this combination of diseases.

It might be argued with considerable show of reason that the arthritic disturbance is purely symptomatic of a pyæmic condition, and hence non-rheumatic in nature; but this latter view cannot be correct relative to at least one half-dozen instances in which a detailed description of the symptoms was given. Moreover, I have endeavored to eliminate what might be regarded as doubtful cases, classifying them as "synovitis," etc. In connection with this, the fact before stated, that in fourteen instances chronic rheumatism preceded the attack and most probably operated as a predisposing factor, should be borne in mind. From these statistics it may be seen that pneumonia and pleuritis complicate erysipelas in a small proportion—less than one per cent.—of the cases. In some instances pneumonia appeared early, hence it was due most probably to a special localization of the specific streptococcus. To such the term "pneumo-erysipelas" is here applied. The cases—two in number—in which acute nephritis developed during the first few days of the attack should be termed "nephro-erysipelas."

I do not doubt that pneumonia, both lobar and catarrhal (the latter probably always), and acute nephritis, as well as pleuritis, may also occur as secondary results. It should be pointed out that acute endocarditis was present in but a single instance, and, since this complaint is held to be a relatively common complication by most recent authors, the present results may excite considerable surprise. Meningitis, which was formerly thought to be quite frequent, but is believed to be rare by a few recent writers, was present in one instance only, thus corroborating the latter view. Active delirium in this disease points to a severe type of infection, and not, as a rule, to meningitis. Precisely what is implied by "a complicating synovitis" it would be difficult to determine, unless we believe it to be a pyæmic manifestation,—a not unlikely theory, I think. Perhaps certain other conditions, supposed to be complications, are to be regarded as pyæmic indications, such as jaundice, etc. Mastoiditis, otitis media, tonsillitis, and œdema of the glottis are to be looked upon as secondary developments.

Some interesting facts relating to the mortality-rate of this disease were

also brought to light by these researches. In the opinion of all authors the death-rate is exceedingly variable, ranging, according to some writers, from one to fifty per cent. That it does exhibit great variations in this respect cannot be reasonably denied, but the limits of its diversities have been by many too widely separated. The correctness of this latter assertion will be evident after a glance at the accompanying table, which gives the number of cases from the different institutions separately, in which the terminations were recorded, with the number and percentage of deaths for each hospital, as well as the same points with reference to the cases derived from private practice.

TABLE I.[1]

Source of Cases.	Number of Terminations Recorded.	Number of Deaths.	Percentage of Deaths.	General Average Mortality.
Blockley Hospital	1095	73	6.29	
Pennsylvania Hospital	523	27	5.1	
Episcopal Hospital	71	9	12.6	
Johns Hopkins Hospital	16	3	18.75	
German Hospital	9	3	33.3	
Private practice	96	4	4.16	
Total	1810	119	6.57	6.57

It will be observed that the variations in the percentage of deaths are not so great in the larger individual series, which are composed of sufficient cases on which to base reliable inferences. The general average mortality-rate, it is seen, is 6.57 per cent. The cases from private practice gave a lower death-rate, or 4.16 per cent. In the female sex it is 1.5 per cent. lower than in the male, according to these statistics. Surgical or traumatic erysipelas has a higher ratio of deaths than indicated by the general average. There were one hundred and one cases classified as purely traumatic, and for these the percentage of deaths was 14.5.

A careful study of the cases which were preceded by chronic illness shows that they swell the general average mortality-list, the increase being not less than twenty-five per cent. When occurring in the course of chronic Bright's disease the percentage of deaths was as high as forty, while in pulmonary tuberculosis (first and second stages) it was thirty. The disease proved fatal in two cases that occurred during convalescence from typhoid fever.

The effect of complications upon the frequency of deaths is a question of lively interest and primary importance. This point also was investigated.

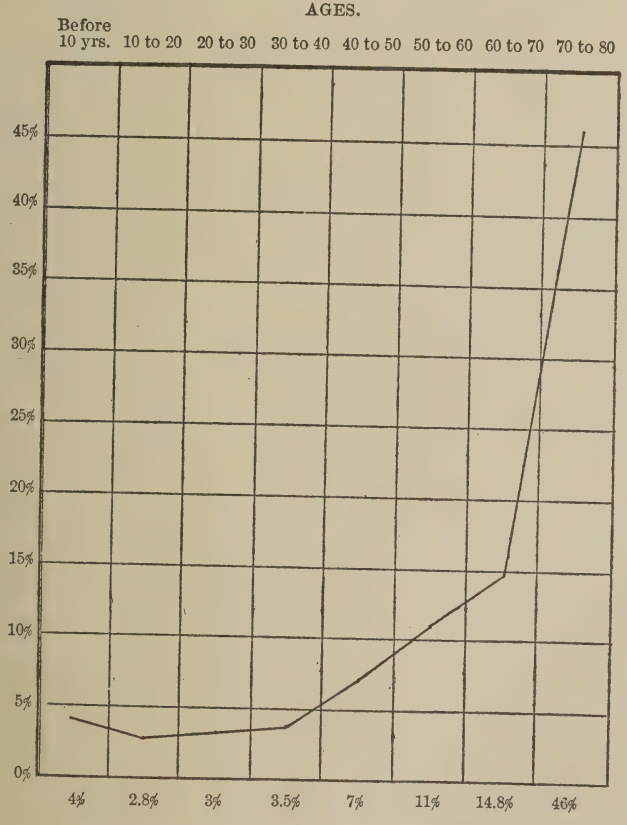
The comparative gravity of the leading complicating conditions and diseases is shown by the following table.

[1] Table VII. of former article.

TABLE II.

Complications.	Instances.	Deaths.	Percentage of Deaths.
Abscesses	105	8	7.6
Acute rheumatism	20	2	10
Pneumonia	7	4	57.1
" catarrhal	2	.....	
Delirium	7	4	57.1
Delirium tremens	10	8	80
Pleuritis	7	1	14.3
Acute nephritis	6	3	50
Phlebitis	7	.....	
Synovitis	5	.....	
Diarrhœa	5	.....	
Œdema of larynx	2	2	100
Pyæmia	1	1	100

It will be seen that while abscesses are common they do not to any extent augment the mortality-rate. Pneumonia, delirium, delirium tremens, and acute nephritis are among the graver complications. Acute rheumatism,



on the other hand, stands second in frequency, but is comparatively harmless. To account for the increase in the percentage of fatal cases due to

acute articular rheumatism we possess no positive knowledge. The opinion is and long has been prevalent that erysipelas benefits and even cures acute articular rheumatism and other affections, including carcinoma and sarcoma.

Age modifies the mortality. Above may be found a tracing which represents the percentage of deaths in erysipelas, for the different decades, from the time of birth to eighty years of age. The line rises in increments of five. The mortality, it will be seen, is much less than the general average,—*i.e.*, 6.57 per cent.,—from birth to forty or forty-five years, and then it gradually becomes greater until we reach sixty years. After sixty each year increases considerably the percentage of deaths, while after seventy the percentage rises rapidly to forty-six. While age, *per se*, as has been stated, influences the death-rate quite materially, it does so only in persons over forty-five years of age. Other factors must not be overlooked. It was among middle-aged and old persons that, comparatively speaking, most of the cases occurred in which chronic affections were associated. These latter, as previously shown, exert considerable influence upon the mortality. The various complications before mentioned did not prevail more extensively during the later than during the earlier periods of life.

In conclusion, I would submit a few deductions which may serve not only to reiterate some of the leading demonstrated facts, but also to facilitate a discussion of the same:

(*a*) In typical cases erysipelas is a self-limited disease, the average duration in persons under forty years of age being fourteen days.

(*b*) The course of the disease was greatly lengthened when complications were present or chronic affections pre-existed, as well as when occurring in persons over fifty years of age.

(*c*) Certain chronic affections, notably pulmonary tuberculosis, chronic nephritis, chronic rheumatism, and organic diseases of the heart, increase the susceptibility to the complaint,—having been present in 7.8 per cent. of the total number of cases.

(*d*) The most common complications were abscesses and acute rheumatism; the rarest meningitis and ulcerative endocarditis, pericarditis not having furnished a single instance.

(*e*) The general average mortality was 6.57 per cent., while in the cases from private practice it was 4.16 per cent.; in persons under forty years it was only 3.5 per cent., in those over seventy years 46 per cent., and in the traumatic cases 14.5 per cent.

(*f*) The mortality-list was augmented as much as twenty-five per cent. by the presence of coexisting chronic affections.

(*g*) The numerous complications also increased the percentage of deaths, and certain of them in an especial degree, notably lobar pneumonia, acute nephritis, delirium tremens, and active delirium.

(*h*) Age has a decisive influence upon the mortality after the forty-fifth year, this effect becoming more pronounced after the sixtieth year.

NOTE ON THE CURVED LINE OF DULNESS IN PLEURITIC EFFUSIONS.[1]

BY EDWARD F. WELLS, M.D.,
Chicago.

ONE of the most remarkable features of the effusion of fluid into the pleural sac is the fact that the superior line of dulness—and therefore the surface of the fluid—is not horizontal, but is invariably,[2] unless adhesions are present, highest in the axilla and higher in front than behind. Neither is this line a straight one, but it assumes the form of an elongated and greatly inclined letter S, with the lower part cut off. The attention of the profession was first directed to this point by Damoiseau,[3] and particular attention has been given it by Ellis,[4] Garland,[5] and others. My attention was first called to the curved line of pleuritic effusion by Ellis's paper in 1874, and in all my cases particular attention has been paid to its demonstration. As the result of my observations I am prepared to say that the line of demarcation—the patient being erect—is never horizontal, but is invariably curved, with its highest point in the axilla. My curves, however, are usually not so regular as those depicted by Ellis, but approach more nearly in shape and variety those of Gerhard,[6] Wintrich,[7] and other German writers.[8]

The practical value of this discovery is apparent, for, it being once known that a pleuritic effusion begins to accumulate in the axillary line and is here always most abundant, small or moderate and early effusions may be diagnosed with certainty and ease if searched for in this locality. Besides, experience has taught me that a curved line of dulness having the characteristics referred to is practically diagnostic of pleuritic effusion.

Peter[9] goes so far as to consider the presence of this line pathognomonic of fibrinous effusion; but the experiments of Garland and the cases of Ellis, as well as some of my own, show that it is present in all kinds of pleuritic effusions, serous and purulent, as well as fibrino-serous. Even air first accumulates in the lowest part of the subaxillary region.[10]

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[1] Read before the Chicago Medical Society, December 5, 1892.

[2] McSherry, Medical News, May 19, 1883, p. 551, offers an exception to this rule.

[3] Arch. Gén. de Méd., 1844.

[4] Boston Med. and Surg. Jour., January 1, 1874, and December 14, 1876.

[5] Pneumono-Dynamics, Boston, 1878.

[6] Auscultation u. Percussion, Tübingen, 1866, S. 207.

[7] Virchow's Handb. d. Spec. Path. u. Therap., Bd. v., S. 254.

[8] Ferber, D. phys. Symptome d. Pleuritis Exsudativa, Marb., 1875, S. 33; Niemeyer, Percussion u. Auscultation, Erlangen, 1868, S. 181, et al.

[9] Gaz. des Hôp., 1869, No. 4.

[10] Damoiseau, op. cit.

It is a well-known fact that the line of dulness is not an abrupt one, but that between the region of normal resonance and complete dulness there is a band of greater or less width where, by gradually diminishing resonance, the former insensibly passes into the latter. The elaborate experiments of Garland have demonstrated that this is due to the fluid rising to a greater height along the sides of the chest,—the resiliency and active expanding power of the lung thrusting itself, as it were, into the exudate.

Thus far the ground has been well worked over, and satisfactory explanations are ready for the phenomena observed, but I desire to call attention to a point to which I do not know that consideration has as yet been given. I refer to the fact that when the fluid portion of a fibrino-serous exudate has been absorbed, and a considerable or large quantity of fibrinous material has been deposited in the bottom of the pleural sac, and has become organized and attached to both layers of the pleura, with appreciable dulness on percussion, the line of demarcation is still usually a curved one, highest in the submaxillary region, and higher in front than behind.

Case I.—A young lady aged eighteen, of delicate organization and previous good health, was taken, February 26, 1875, with a chill, followed by a short, dry, painful, and repressed cough; acute lancinating pain in the right side, radiating from a point in the axillary line at a somewhat higher level than the nipple; elevation of the temperature to 101° F., acceleration of the pulse to 120 and of the respiration to 32, with a shortening of the inspiratory act and thoracic oppression; anorexia, nausea, coated tongue, constipation, scanty urine, headache, sleeplessness, etc. On the next day she had a second chill, followed by occasional chilly sensations on the two succeeding days. For several days after the third day the spleen was enlarged, painful, and tender. On the fourth day there was considerable dyspnœa, and she had several "fainting-fits," especially upon assuming the upright posture. The effusion, which had gradually appeared in the right pleural cavity, now extended to the third rib in front, but to a much less height behind. On the fifth day the acute symptoms subsided, and in due time convalescence was established. The effusion was very rapidly absorbed until the level of the fifth rib in front was reached. Subsequently the line of dulness fell to the normal level behind, but it remained permanently at the upper border of the fifth rib in front. Her health has since been good.

Case II.—Mrs. J. McK., aged forty-one, was first seen in May, 1887. She was of spare build, five feet six inches in height, and usually weighed about one hundred pounds. Previous to five years before she had enjoyed good health. At that time she was ill for seven months or more with fever, cough, expectoration, and wasting, but from this she completely recovered.

Her father died at the age of thirty of typhoid fever. Her paternal grandparents were healthy and lived to old age. Four uncles and one aunt on this side of the house are living and healthy. Her mother died at the age of thirty of consumption, marked by cough, expectoration, hæmoptysis, and two or three years' illness. The immediate cause of death was an

attack of hæmoptysis. Two uncles and three aunts on this side died of phthisis, after lingering illnesses, at ages ranging from twenty-five to forty years. Her maternal grandparents lived to old age and were healthy. She has two brothers and one sister living, varying in age from forty-five to fifty. The brothers are healthy, but the sister has consumption. One sister died in childhood of whooping-cough. She has five children, ranging in age from four to twenty, all of whom are healthy.

In March or April a boy of twelve years pulled her forcibly and suddenly backwards by placing his hands upon her shoulders and his knee against her back to the right of the spine. She at once experienced pain in the right side of the chest, and a few days afterwards began to have fever, coughed, and became dyspnœic. When first seen her condition was as follows: There was a powerful but infrequent cough, without expectoration or pain; shortness of breath, which passed into dyspnœa on exertion and orthopnœa on lying down; constipation and frequent passage of scanty and highly-colored urine; a chill daily at noon, followed by fever and profuse night-sweats, etc. The right pleural cavity was filled with fluid as high as the second rib, with bulging of the intercostal spaces, and enlarged veins coursed over the surface. Posteriorly the line of dulness was found about two inches below the spine of the scapula. She was confined to her bed.

Her condition gradually improved, and after three months she resumed her household duties.

On January 1, 1889, her condition was as follows: Her general appearance is not very bad; the face is thin, but this is not unnatural with her; she is pale, and her voice has a peculiar plaintive quaver; she menstruates regularly; she seldom perspires, and passes urine normally; the pulse is 80 and the heart-sounds are normal; respiration is 17, and with an effort she expires seventy-five cubic inches of air; resonance and the respiratory sounds are very clear all over the left side; on the right side above the third rib in front, and about three fingers' breadth below the spine of the scapula behind, there is diminished resonance and weakened respiratory murmur, with crackling sounds on deep inspiration; below this line there is complete dulness on percussion and absence of all respiratory sounds; the right shoulder is almost two inches lower than the left, and the right side, except at the apex, is motionless during respiration; the girth of the chest at the height of the axilla is twenty-nine inches, increased to thirty inches on deep inspiration, and at the base it is twenty-eight inches and twenty-nine inches respectively. She seldom coughs.

This lady died of phthisis in the summer of 1890.

Case III.—Last winter I saw, with Dr. Robert Dodds, of this city, a gentleman forty years of age, of a phthisical family, who six months previously had suffered an acute attack of pleurisy of the left side, from which he had not yet fully recovered. When examined there was found an area of complete dulness extending up to above the nipple in front, higher in

the axilla and lower in the back. Over this space incessant creaking sounds were heard with the stethoscope, and often this creaking was so pronounced that it could be heard by the observer at a considerable distance from the patient.

This man's health has markedly improved, so much so that he has recently borne the hardships of a prolonged hunting expedition.

The number of similar cases might be greatly extended, and the above are only offered as examples of my experience that when prolonged dulness follows pleuritic effusion it usually, if not always, is most pronounced and rises highest in or in front of the axillary line.

THE NERVOUS ORIGIN OF JAUNDICE.[1]

BY A. D. ROCKWELL, M.D.,
New York.

It is well known that disturbances of the brain, both organic and functional, may very seriously interfere with the functional activity of distant organs. Without questioning the well-attested fact that many of the cerebral hystero-neuroses or hystero-psychoses are directly dependent upon uterine or ovarian disease, it is equally true that a cerebral disturbance may be the direct causative factor of very persistent derangements of the sexual apparatus. The bladder, intestines, stomach, and heart may also be disordered by diseases of the central nervous system, and so also may the kidney and the liver. Then, again, so closely and so strangely are the vascular and the general nervous system related to each other that their pathological conditions are often inseparably connected. The nervous system of vegetative life, as it is sometimes called (the pneumogastric, the great sympathetic, including the vaso-motor system of nerves), has an alliance so close with the functional activity of the secretory and excretory glands of the body that emotional disturbances, according to their character, act as depressants or excitants of the functional life of these organs.

Some of the more common of these effects are every-day familiar facts, as when the flow of tears is excited through grief, or the secretion of the saliva and gastric juice through the smell of food. On the other hand, the salivary secretion may be at once arrested through sudden fear, and under the influence of supreme grief there is often a complete arrest of the function of the lachrymal gland. I remember once to have witnessed a most interesting example of the profound effect of suppressed emotion in causing and perpetuating pain.

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[1] Read before the New York Neurological Society.

This patient had lost her husband, to whom she was devotedly attached. She had for some months previously suffered from a mild form of facial neuralgia, but immediately after the death of her husband it assumed a most severe type, and for two weeks she suffered excruciating agony. During this time she shed no tears, and on one occasion, taking note of this fact, I said to her that this suppression of all outward emotion was the very worst thing that could possibly happen, and that if she would give way to her grief the neuralgia would in all probability be greatly alleviated. At this she burst into a copious flood of tears, and from that time she suffered no more. Now, just as these superficial and easily-excited glands—the lachrymal and submaxillary—are influenced by emotional causes through the nerves supplying them, so in all probability are the blood-making or ductless glands in great measure regulated and controlled by the organic nervous system. Diseases of the supra-renal capsules—diabetes, leucocythæmia, and other forms of malnutrition—are admittedly due to perversion of the functional activity of the several blood-making organs, which are so intimately linked, through the great sympathetic system, with sensory impressions referable to the cerebro-spinal system. Equally, and perhaps even to a greater extent, nervous influences are prone to affect the function of the liver.

Dr. Murchison, to whom the world is so indebted for enlightenment on this subject, fully appreciated the influence of the nervous system upon the secreting organs. He asserted that not only was the secretion of the bile interfered with by prolonged mental anxiety, worry, and incessant mental exertion, but that the process of sanguification and blood-change in which the liver takes part were frequently deranged from these same causes.

Murchison says that "acute atrophy, in which the secreting cells are rapidly disintegrated and the functions of the organ arrested, appears in many instances to have a purely nervous origin, and very often the first symptoms of the disease have occurred immediately after a severe fright or an outburst of passion in a person previously healthy."

An impression made upon the brain appears to be reflected to the liver and deranges its nutrition. Even cancer of the liver appears sometimes to result from the functional derangement induced in the first instance by mental trouble. Dr. Budd, a keen observer, wrote that "Another condition that seems to me to have great influence on the production of gall-stones, or at least of biliary gravel, is mental anxiety or trouble."

Clinical experience, therefore, and our knowledge of the intimate relationship between nutritive centres and the various organs of the body, render it quite certain that any variation of its normal activity may pervert the functional activity of distant glands with which they are related.

With jaundice due to some mechanical impediment to the flow of bile through the hepatic duct we have manifestly nothing to do in this presentation, but with some of the causes, other than mechanical, of this not infrequent affection our line of thought directly interests us.

For one not in general practice I have had occasion to see and treat a considerable number of cases of jaundice dependent upon a great variety of causes, and have been impressed with the frequent occurrence of cases due to deranged innervation interfering with the normal metamorphosis of the bile. The old theory—the theory of Boerhaave and Morgagni—that jaundice was merely the result of a suspended secretion, that bile was formed in the blood, and that the function of the liver was to separate the bile *from* the blood, seems now to have little to commend it, and we must seek some explanation other than a suppression of the hepatic functions. According to Professor Frerichs, the bile-acids manufactured in the liver, or the larger proportion, are absorbed either by the biliary passages or by the mucous membrane of the bowel, and thus enter the circulation. The bile, as well as the fluids from the gastric and intestinal glands, are thus absorbed, secreted, and again reabsorbed, becoming adapted through constant metamorphosis for the repair of tissue; while much of it, becoming finally oxidized, is eliminated by the various excretory organs of the body.

The taurin found in healthy lung and the pigment in healthy urine are evidences of these normal metamorphoses. If, however, through the entrance of poisons into the blood, through a deficient supply of oxygen, as in some cases of pneumonia, or where persons are habitually confined in small and ill-ventilated habitations, or where there is obstinate constipation with excessive secretion of bile, and, finally, when the individual has been subjected to extreme nervous influences, such as fright or rage, and especially the depressing influences of great grief and anxiety, the proper oxidation of the bile-acids is interfered with, bile-pigment appears in the blood, and jaundice results. According to my own experience there is little to differentiate in the diagnosis between jaundice the result of purely nervous agencies and where it results from the various other non-mechanical causes, without it is the more sudden onset of the discoloration in the former class of cases. Jaundice from both obstructive and nervous causes are alike in the suddenness with which the symptoms frequently appear. A thorough history of the case will, however, generally enable us to determine whether the exciting cause is of a nervous or non-nervous character. As between jaundice from mechanical and non-mechanical causes, it is the common observation that the discoloration of the skin is much more intense in the former than in the latter. If, however, the obstruction becomes permanent, the complexion to a certain extent clears up, from the fact that the bile becomes diminished in quantity because of a progressive destruction of the secreting tissue of the liver. Another point of differential diagnosis between the two main divisions of jaundice is in the entire absence of bile in the fæces in obstruction of the biliary ducts, while in the non-mechanical cases bile is usually discharged with the passages. I have selected from some twenty-three cases of jaundice which have come under my personal observation and treatment three which mainly form the basis of the foregoing remarks, and which I propose to relate in no great detail.

These three cases seemed to be of distinctly neurotic origin, and two of them indicated a very interesting hereditary tendency.

Mr. B., aged fifty-three, a lawyer of excellent attainments and a hard worker, consulted me in March, 1888. That he was suffering from jaundice was evident on first sight and without a word of explanation. He was not constipated, nor were his stools greatly changed in color or unusually offensive. He suffered no pain, nor had he from the beginning; only a want of energy and a vague, indefinable sense of physical discomfort, associated with mental depression and a deplorable lack of mental vigor. This is his somewhat laconic but forceful description of himself: "I am a nervous man and always have been; my father before me and my mother too. When a child I had St. Vitus's dance, and when I grew up I was afraid of everything."

It seems that at one time in his life morbid fears of various kinds had greatly distressed him, indicating a functional depression of the nervous system that rendered him for several years incompetent and inadequate for the duties of life. His success had indeed been greatly retarded by this excessive timidity. To a considerable extent, however, he gradually overcame these natural and inherited defects, and has been able to pursue the work of his profession satisfactorily. A short time before his visit to me he was feeling as well as at any time in his life, when an unfortunate occurrence that entailed disgrace upon a member of his family produced an effect from which he found it difficult to rally. A few nights after the shock alluded to he retired with feelings of great depression. He was restless and somewhat flighty during the night, but towards morning he slept profoundly for several hours. While still asleep his wife noticed a strange discoloration of the skin, and when he awoke, about eight o'clock, the jaundiced condition of both the conjunctivæ and skin was very marked.

Taking into consideration the sudden onset of the jaundice, the absence of constipation, the natural appearance of the discharges, the excellent condition of the digestion, together with the neurotic history of the patient and the cause that so disturbed his mind, it seemed to me quite evident that the interruption of the normal metamorphosis of biliary secretion was directly due to nervous agencies. It is well understood that nervous tendencies are transmitted from generation to generation, and that in various branches of a family a certain vulnerability of the nervous system prevails, rendering its members liable, not necessarily to the same disease, but to some one of a group of diseases that has for its basis the neurotic habit. Hereditary or family tendencies along the line of visceral disturbances found an interesting exemplification in the two other cases, upon the observation of which these remarks were suggested.

G. F., aged nineteen, belonged to a family whose whole history indicated an extraordinary tendency. His grandfather had been an inmate of an insane asylum during the latter part of his life. His father had been for years a typical neurasthenic, and in 1875 had been under the care of

the late Dr. Beard, and subsequently came under my observation. His mother was an exceedingly nervous woman, as I myself can testify from repeated interviews, and a few years before the present patient came under my care I had treated a younger sister for well-marked chorea.

This patient (G. F.) came to me one morning, presenting a well-marked example of jaundice. The yellow stain extended all over the body, and was particularly deep under the hair of the head. The stools were natural in appearance, and there was no constipation and no unusually offensive odor. He complained of weakness, heaviness of head, and mental dulness, but suffered no pain. The attack was sudden.

The patient had been feeling in his usual physical health, but for some weeks had been more or less anxious and nervous on account of an approaching scholastic examination. Once before he had failed, much to his mortification, but on this second occasion he felt well equipped and reasonably confident of success. He was, notwithstanding, again rejected, and the revulsion of feeling that he experienced was extreme. It rendered him sleepless, with loss of appetite and profound mental depression.

He received news of his failure to pass on Wednesday, and on the following Friday he observed the discoloration of the skin. It was but a short time after this that the sister of this young man—the same whom I had treated for chorea in her childhood—came to me suffering from a headache that was quite persistent. Upon closer examination I easily detected a yellow tint to the conjunctivæ, which gradually deepened during the next few days, until finally the skin became unmistakably discolored. I could trace back these symptoms to no special nervous cause, excepting the deep and very manifest sympathy with her brother and her very great disappointment at his failure, but that the remote causative factor was the distinct nervous diathesis that prevailed in this family admitted it seemed to me of no dispute.

In regard to the functions of the liver, however, it has now come to be well understood that disorders of the secretion of bile are by no means the most important.

Disorders of its metabolic function frequently result in absolutely incurable disease, and in some respects the most serious to which the human system is liable.

One of the most interesting things to the neurologist connected with faulty albuminoid disintegration is the striking similarity of the symptoms of neurasthenia with some of the manifestations of lithæmia.

Now, while gout and the lithæmic condition generally is in the vast majority of cases dependent upon indolent habits and persistent over-eating and drinking, it is equally true that a small proportion of such cases unmistakably originate or are aggravated through depressed nervous or emotional causes. There is in my experience no special dissimilarity of symptoms between the ordinary gouty or lithæmic patient and the one where the lithæmia depends upon nervous influences; but between the latter con-

dition and neurasthenia there do exist points of diagnosis which, while easily overlooked, are yet quite positively distinguishing.

Upon this subject I claim the right to speak with some authority, since for many years I have had the advantage or disadvantage—depending upon the point of view—of studying the lithæmic state clinically in my own person.

I believe in the term neurasthenia, and in the reality and frequency of the neurasthenic state, but I do sincerely deplore the frequency and persistency with which, by both patient and physician, disorders of the metabolic function of the liver are mistaken for functional nervous disorders, or for malaria, that other easy refuge for ignorance or carelessness.

According to my own experience, one of the most common and distinctive points of differential diagnosis between lithæmia and neurasthenia is the difference in the character of the mental phenomena.

Both the lithæmic and neurasthenic suffer from mental depression and a profound sense of misery, more marked, indeed, in the former than in the latter condition.

While, however, the neurasthenic may suffer from the deepest melancholy and imagine himself heir to a thousand ills, he becomes the victim, as a rule, of no such irritability and unreasonable outbursts of temper as the man whose brain is actually poisoned by the imperfectly transformed products of digestion.

The neurasthenic may be at times extremely irritable, but this irritability is more passive than active, and any ebullition of angry feeling is quite evanescent. His demeanor is as a rule quiet, and there is but little manifest tendency to make those dependent upon him miserable by his words and actions.

The touchy mood of lithæmia, on the contrary, may last for days or weeks.

It is due to actual toxæmia, is often, if not generally, accompanied by obstinate constipation, and may be temporarily relieved by a cholagogue cathartic. In neurasthenia, again, cold hands and feet are not by any means the rule; but in intestinal and liver derangements the nitrogenized wastes circulating in the blood cause by their irritation tonic spasm of the arterioles, resulting in the cold hands and feet so bitterly complained of by the sufferers from lithæmia.

The condition of the tongue is an important diagnostic aid.

In lithæmia it is coated far more frequently and to a greater extent than in neurasthenia, but in some cases of lithæmia the tongue is but slightly affected. It may at first sight appear perfectly normal, and it is only when looked at carefully from the side that an unnatural brownish color is observed. As regards the pulse, it may be said that in lithæmia it is slow rather than fast, and in neurasthenia fast rather than slow.

In neurasthenia the oxalates are frequently found in abundance, while in lithæmia the lithates are often freely deposited.

These observations, especially as they relate to lithæmia, have been suggested not because I believe that nervous agencies are the most important factors in the production of visceral disturbances. The preponderating influences in the causation of such conditions are undoubtedly vicious methods of living. How we live, how and what we eat and drink, and the hygienic influences of exercise in the open air will in great measure determine the functional activity of the great excretory and secretory organs, as well as the stability and strength of the nervous system itself. It is not always the simplest thing to diagnose correctly and at a first interview between a purely functional disease of the nervous system and disorders of the biliary and metabolic function of the liver. The lines of treatment for the two conditions diverge about as abruptly as for any two pathological conditions in the whole category of disease, and it must have been within the experience of every member of this society to have seen cases of such mistaken diagnosis that involved mistaken treatment and misery unnecessarily prolonged.

THE TREATMENT OF POSTERIOR URETHRITIS BY IRRIGATION, WITHOUT THE USE OF TUBE OR CATHETER.

BY G. FRANK LYDSTON, M.D.,

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In view of the fact that deep urethral injections by the Ultzmann syringe constitute the most generally accepted method of treatment of posterior urethritis, a few brief notes upon a method of treatment which I have frequently found to be of great service may not be out of place.

Right here let me call attention to what seems to me to be a quite prevalent error regarding the diagnosis of posterior urethritis,—viz., it is often supposed that a persistent discharge from the meatus is indicative of posterior urethritis. I desire to assert my belief that posterior urethritis *per se* never gives rise to a visible discharge. It may do so by infecting the anterior urethra, but in no other way. The reason for this is obvious,—pus in the prostatic urethra passes in the direction of the least resistance. This is always towards the bladder. The true sphincter—always on guard—allows no fluid to escape forward in the intervals of urination. Fill the prostatic urethra with nitrate of silver solution, and unless vesical spasm and strangury occur not one drop will escape into the anterior urethra; it will, however, escape into the bladder if quite a quantity enters the prostatic urethra. Whenever, then, posterior urethritis is accompanied by urethral discharge, there is disease in the anterior urethra. No treatment is apt to

be successful, therefore, which does not comprehend the restoration of the anterior urethra to its normal condition. Many a so-called posterior urethritis gets well as soon as large-calibred penile strictures have been cut.

Another point: In almost all cases of posterior urethritis the patient gives a history of so-called "prostatitis," "neuralgia of the vesical neck," "cystitis," "irritable bladder," etc.

Irrigation of the deep urethra by catheter or tube is a rank failure, and generally does more harm than good. In the anterior urethra it is a failure because the folds of the mucous membrane are not smoothed out and thoroughly disinfected. Any system of treatment that does not reach every portion of the infected area is energy misapplied; furthermore, the resulting traumatic irritation favors reinfection. The bladder itself usually requires attention in posterior urethritis.

And now for a plan which will carry our antiseptic and microbicidal medicaments to every nook and cranny of the infected area. This desideratum is favored by irrigation of the urethra through a short nozzle, the meatus being compressed about the nozzle so that the fluid may balloon the urethra thoroughly. The degree of pressure is readily adjusted by raising or lowering the irrigator. As a rule it should be at about the level of the patient's head, he being in the standing posture. It can be further regulated by the degree of compression exerted by the thumb and finger about the nozzle: the more fluid that is allowed to escape, the less the pressure within the urethra. After the anterior urethra has been thoroughly washed the patient should try to urinate while a full stream of antiseptic fluid is ballooning the urethra. Relaxation of the sphincter results, and the fluid enters the deep urethra and bladder. As soon as the bladder is filled,—which the patient readily appreciates,—the fluid should be allowed to escape. The process is repeated until several quarts of fluid have been injected and ejected. I first use a moderately warm solution containing as much boracic acid as will dissolve, with ten grains of salicylic acid and an ounce of glycerin to the quart. This irrigation removes all shreds of muco-pus and effete epithelium. I then use about a pint of warm solution of nitrate of silver, in a strength of from one-fourth to one grain to the ounce. This attacks the abraded and congested points quite as vigorously as will five- or ten-grain solutions given in the ordinary manner. Other astringents and antiseptics may be used, but the silver solution is the best on the average. Should pain and strangury be severe, it may be allayed by an injection of a few drops of a four-per-cent. solution of cocaine, or by an eighth of a grain of morphia per orem. The morphia may be given a short time before the treatment or immediately after it. I wish it understood that I advocate this treatment only in chronic cases.

AN EPIDEMIC OF DIPHTHERIA IN HIGHTSTOWN, NEW JERSEY, IN JULY, 1893, SUPPOSED TO HAVE BEEN CAUSED BY INFECTED MILK.

BY G. H. FRANKLIN, M.D.,
Hightstown, New Jersey.

In the month of July there appeared in Hightstown, New Jersey, an epidemic of diphtheria which has excited wide-spread interest on account of its supposed origin from infected milk.

Hightstown has about two thousand inhabitants, is healthfully situated, and its sanitary conditions are as good as those of any country town. We occasionally have sporadic cases of diphtheria, but there has been nothing like an epidemic of the disease here since 1875, when there were thirty-six deaths. During the months of May and June, 1893, there were five mild cases and one malignant case in our town, but they were all convalescent one month before the epidemic developed, except the following one, which proved fatal.

This case was that of a little girl four years old, who was taken sick on the 10th day of June with nasal diphtheria, which rapidly spread into the pharynx. The cervical glands were enormously enlarged, the constitutional symptoms profound, entire suppression of urine for three days, and the patient died after a seven days' illness. As there were no cases at that time in the town, the source of her disease was traced to a cat that suffered from "distemper," and which was fondled by the child five days before her illness began. This child's milk-supply was obtained from the dairyman who furnished the milk which is suspected of originating the recent epidemic. On the fifth day of the child's sickness the mother developed the same disease, and in about a week was convalescent, although her attack was followed by rheumatism. From the date of her convalescence, June 22, to the first epidemic case, July 18, there was no diphtheria in our town. The epidemic cases, supposed to be due to primary infection, all developed in one week, from July 18 to July 25. Cases occurring later were supposed to have been caused by secondary infection, the last of which developed on August 2. Since then there have been no new cases, and now, August 12, all surviving patients are convalescent.

The total number of cases, primary and secondary (contracted from other patients), were about forty; of these thirty-two were primary. Eleven of the primary cases died. The patients succumbing to the disease were from two to nineteen years of age, and the duration of the illness was from three to seven days.

I append herewith a tabulated report of my cases, which may be of some interest to the profession.

EPIDEMIC OF DIPHTHERIA IN HIGHTSTOWN, NEW JERSEY.

Cases in the Practice of Dr. G. H. Franklin.

Number.	Age.	Sex.	Date.	Nature of Attack.	Duration.	Termination.	Treatment.	Remarks.
1	15	Male	July 18	Malignant	5 days	Death	Calomel until free catharsis, then hy. bichlorid., tr. ferri chlor., stimulants, and spray of hydrogen peroxide.	Did not see this case until second day of illness, then it was hopeless.
2	4	"	" 20	Non-malignant	5 "	Death	Calomel, turpentine, iron, stimulants, steam atomizer, and slaked lime.	Diphtheritic laryngitis developed on the third day.
3	20	Female	" 20	Mild	7 "	Recovery	Hy. bichlorid. and lime.	One week after convalescence commenced the membrane was reproduced.
4	7	"	" 22	Malignant	3 "	Death	Calomel at first, iron, stimulants, nourishing enemata, hypodermics of strychnine.	Vomited constantly, both food and medicine.
5	19	Male	" 22	Mild	3 "	Recovery	Calomel.	This is the milk boy, who went to Philadelphia, and was seen but once.
6	18	Female	" 24	Malignant	15 "	Recovery	Calomel first, then iron, strychnine, quinine, digitalis, spray of hydrogen peroxide.	This was a bad case, threatened with heart-failure.
7	5	"	" 24	Malignant	14 "	Recovery	Same as No. 6.	This child's temperature was 104° F., and pulse 180.
8	17	"	" 25	Malignant	15 "	Recovery	Same as No. 6.	In this case there was extreme prostration.
9	10	Male	" 25	Malignant	16 "	Recovery	Calomel at first, then hy. bichlorid., tr. ferri chlor., stimulants, strychnine, and spray.	Had weak heart.
10	4	"	" 27	Malignant	15 "	Recovery	Calomel, iron, stimulants in large quantities, spray of hydrogen peroxide to nares and throat.	This was a bad case of nasal and pharyngeal diphtheria, and had partial suppression of urine, for which I cupped his back.
11[1]	30	Female	" 27	Mild	4 "	Recovery	Iron.	
12	32	Male	" 27	Moderate	10 "	Recovery	Iron.	
13	14	Female	Aug. 2	Moderate	12 "	Recovery	Calomel, iron, and strychnine.	

[1] The last three cases were secondary, contracted from previous cases. All cases were treated locally with ice-bags, or cold poultices made of moistened corn-meal and fine salt, applied to the neck.

The direct cause of death in most cases was toxæmia. One patient, No. 2 of my report, died of diphtheritic laryngitis.

The epidemic was unusually malignant, and strongly marked in the rapidity of its development. As a rule, the constitutional symptoms were first apparent, and the patients made no complaint of the throat, but inspection would show some little congestion and the formation of a pseudo-mem-

brane in the pharynx. The membrane spread rapidly, and with equal rapidity the entire anatomical parts of the throat and neck were involved; so that in from four to eight hours what at first appeared to be a mild case would assume alarming symptoms.

One patient, No. 4, I saw the second time four hours after my first visit, and so great had been the change that I could hardly make myself believe that I was looking into the same throat. Constitutional symptoms were marked, the fever ranged fron 102° to 104° F.; the pulse was quick, small, wiry, and irregular, 120 to 180; the stomach in some cases was irritable, but in most instances the food and medicine were retained; the bowels were normal, except when acted on by cathartics. In all severe cases the prostration was extreme.

In those patients who recovered convalescence was slow, and the membrane would repeatedly reappear. Some patients had to be kept quiet after convalescence was established, on account of the weakened condition of their hearts. Two of my own cases are suffering from partial paralysis of the vocal cords, and one has a weakness of the flexor muscles of the leg.

I have been asked why the disease did not spread any further. Why have there not been more secondary cases? I think the explanation of this lies in the fact that the people were thoroughly alarmed and willing to carry out the instructions of the Board of Health and physicians concerning the importance of isolation and thorough disinfection. Spraying the throat with antiseptics not only helps the patient, but prevents the spread of the disease.

Dr. T. J. Mays, of Philadelphia, saw No. 4, in consultation, about sixteen hours before her death. No. 6 was the dairyman's daughter. No. 5 is of interest because he worked for the milkman, and because my diagnosis has been questioned by some of the laity. His history is as follows: He came to my office on Saturday, the 22d, and said he had not felt well since the previous Thursday morning, but that his throat had not troubled him until the morning that I saw him. He had aching pains in his head and limbs, fever, and a quick pulse. The entire pharynx was congested, the tonsils were enlarged, and upon each tonsil there was a patch of pseudo-membrane about the size of a silver quarter. As I looked at his throat I remarked that he must have had diphtheria at least two days, and I am now of the opinion that the disease had existed in a mild form for that length of time or longer. During this time he continued at his work of milking the cows and of washing the jars. I ordered his isolation, but he was allowed to go to Philadelphia. In about ten days he returned, saying that on Tuesday, the 25th, three days after I saw him, he went to a Philadelphia hospital as an out-door surgical patient. There they told him that he had tonsillitis, and lanced his throat on both sides. He says there was no discharge of pus, nothing but a little blood. I think his throat had cleaned of membrane when he got to the hospital, and for this reason the true nature of his case was not recognized. I regret very much that I did

not have the opportunity to follow up his case. If we could say positively that he had had diphtheria on the 16th or 17th, it would throw much light on the part which the milk played in this infection, but that is impossible, since the boy did not make any complaint to his employer until the 19th, which was one day after the first case had arisen in the town. It is my belief, however, that the epidemic had its origin in the infected milk, and this for the following reasons:

1. While six dairymen supplied the town with milk, all the cases were on one milk route.

2. The cases were not confined to one locality, but were widely scattered in all parts of the town, occurring in the best families, and where sanitation was the best.

3. In one family the parents drank the infected milk and had the disease, while the children drank other milk and escaped.

4. Of neighboring families, whose children constantly associated with each other and were exposed to the same sanitary and atmospheric influences, *only* those who drank of the suspected milk had the disease, while those who used other milk remained well. My own child was a constant companion of a little playmate. They were together up to eight o'clock on Sunday evening. On Monday morning at three o'clock the playmate was taken sick, and at seven o'clock I found a pseudo-membrane on her tonsils, her pulse 180, and her temperature 104°. I had examined this child carefully at five o'clock on Sunday afternoon and found nothing abnormal. This was the only family on South Main Street which was supplied with the suspected milk, and this was the only case of the disease in that locality.

5. When Dr. E. M. Hunt, secretary of the State Board of Health of New Jersey, prohibited the sale of the suspected milk, the epidemic practically ceased,—that is, there were no new cases, except those already infected or those which were contracted secondarily.

6. The only out-of-town cases were in the dairyman's family and in that of his brother, who lives on the adjoining farm. These two families are, of course, intimately associated. The brother also has a milk route, but there were no cases among his customers.

There is one circumstance that opposes the theory of milk infection, and that is the dairyman has a baby in his family that is bottle-fed, and she showed no signs of illness. The baby was generally fed on milk which was returned after supplying the customers. At times he did not have a sufficient quantity of milk to serve all his patrons, and would buy milk of farmers near the town. In this way the baby may have partly escaped infection by being fed on returned purchased milk. Again, she may have possessed that peculiar immunity against the disease which we cannot explain.

To most persons who have investigated the matter the proof is conclusive that infected milk caused the epidemic. How did the milk become infected? This question is shrouded in mystery, and no positive solution

of the problem has been divulged. In the effort to explain this subject various theories have been advanced. It was rumored that there was a sick cow in the herd, but, soon after the embargo was put upon the milk, Inspector B. Miller, V.S., was called in, and he reported the entire herd healthy. There has been a statement that the cows were fed with potatoes that were partly decayed, and some think this or some other unwholesome food poisoned the milk. Others claim that, as the milk was delivered in glass jars, it may have been bottled before the animal heat was removed, and that such handling would produce a poison in the milk.

Even if the milk was poisoned by a sick cow, or decaying food, or by the animal heat, would a poison thus developed be diphtheritic in character? and would it produce diphtheria or anything like it? A theory which has a shadow of probability in it is, that the milk in the recent epidemic was delivered in glass jars which became infected in the houses where there were cases of diphtheria in May and June. These cases were too remote, however, to make this theory tenable.

The most plausible explanation of the milk infection is that the milk-boy (case No. 5) was a victim of diphtheria in a mild form for a week or ten days before he applied for treatment. Continuing at his work with these germs about him the milk became contaminated. The bacteria, when once in the milk, found it a fruitful culture medium, and thus the whole supply was infected. This theory may not be correct, but it is the most reasonable one that has been advanced; and it should teach us that in all epidemics it is wise to carefully inspect the milk-supply. Thorough investigation in this direction may reveal the cause of what appears to be a mysterious outbreak of disease. It is also incumbent upon our Boards of Health to closely scrutinize and carefully inspect all our food-supply at all times, and thus guard and defend the health of our commonwealth.

FRACTURE OF THE PELVIS.

BY C. E. PERKINS, M.D.,
Sandusky, Ohio.

FRACTURE of the bones entering into the formation of the pelvis, although not a common occurrence, is of sufficient importance to justify me in relating a case and making some remarks suggested by its study.

Mr. G. S., aged sixty-seven years, about five feet three inches in height, and weighing about one hundred and eighty-five pounds, was thrown violently from his conveyance (the horse running away after being frightened), falling about five feet to the pavement, striking upon his right shoulder and hip. I saw him after a few minutes, when moderate shock was present,

and he was unable to move the right leg. Moreover, every movement of the same caused severe pain. He was taken home in a carriage, and examination showed no crepitus in the bones about the hip. The right leg seemed by measurement to be slightly shorter than the left. Urine was found free from blood, but contained an appreciable amount of albumin. His lungs were emphysematous, and there was an atheromatous condition of the arteries. Hot fomentations were ordered, and morphia to relieve pain. On the following day, August 14, with the assistance of Dr. Charles Graefe, ether was administered nearly to complete anæsthesia, but as he bore it badly, it was impossible to make as thorough an examination as desired. It was found that the motions of the hip-joint were normal, and the femur was solid, and with the roughest handling justifiable no crepitation could be perceived. The finger was introduced into the rectum, and on following up the ascending ramus of the ischium from the tuberosity at a distance of

Fig. 1.

External view of a right os innominatum, showing the line of fracture through the ramus of the ischium.

Fig. 2.

Internal view of the same bone, showing line of fracture.

about one and one-half inches, a ridge was felt running in a direction upward and forward, and extending completely across the bone, with overlapping of the lower fragment, as shown by a sharp edge or ridge pointing upward. (See Figs. 1 and 2.)

Upon movement of the leg the lower fragment moved upon the upper, showing very plainly a false point of motion, and establishing the diagnosis of fracture of the ramus of the ischium. As the patient was in a dangerous condition from the effect of the anæsthesia, I was compelled to desist from

further examination. He was put upon his back in bed, with a thick padding beneath the sacrum. He reacted from the ether, and the pain returned. This was relieved by extension applied to the right leg after "Buck's method." He developed tympanites and tenderness over the abdomen the following day, the 15th, and his temperature arose to 101½°, pulse 120, suggesting to one an onset of peritonitis. These complications, however, were relieved by the administration of salines and the application of turpentine stupes, and after the first week his progress was practically uneventful. He was, however, compelled to lie perfectly quiet, as any movement in bed caused him severe pain. There was also to be noticed a very tender point upon pressure, about two inches from the symphysis pubis, over the pubic bone on the right side, to which point, also, pain upon movement of the body or right leg was referred. Ecchymosis developed about the hip and gluteal regions. With the view of allowing him to be moved more freely, a plaster-of-Paris spica was applied on September 2. I might add that a rectal examination made at this time revealed a good-sized lump of callus at the right of fracture on the internal surface of the ischial ramus. The patient was about with crutches on the 20th of September, some seven weeks after the accident, and now he can walk nearly as well as before, without cane or support.

Here, then, we have a fracture of the ascending ramus of the ischium, diagnosed by the sense of touch, but in this case it is more than probable that there was a fracture of the horizontal ramus of the pubes, as there was tenderness at this point both upon pressure and upon movement of the body. Moreover, it would have been impossible to have effected movement of the lower fragment of the ischial fracture had the pelvis been otherwise intact, as the movement would have affected the pelvis as a whole. Neither could there have been any displacement of the fragments, which could be plainly felt by rectal examination. This, in my opinion, would establish the diagnosis of a double fracture.

As to the method of production of this fracture, I think we may say it was direct. Falling upon the right side, by reason of the corpulency of the patient the force was transmitted to the pelvis, which suffered, instead of the thigh-bone, as one would expect in such cases. The outer fragments were driven past the inner by the great force exercised at the moment of striking upon the pavement.

In the treatment of fractures of the pelvis not very much can be done. In this case extension applied to the thigh had a very happy effect, I think mainly because it removed the contraction of the adductor muscles, thus placing the fractured fragments at rest. By padding the back a great deal of the weight of the body was taken from the sacrum, and room was left for the use of the bedpan without disturbing the patient. Upon the application of plaster of Paris on the twentieth day much freer movement could be made without pain; and although the plaster caused some annoyance at first, it was certainly a great help in treatment. The pelvic bandage

which is recommended by some authors was used in this case without satisfaction.

I have made no thorough search through the literature of the subject, but so far as I have been able to ascertain fracture of the pelvis of this kind, especially in so aged a patient, ending in recovery, may be considered quite rare.

CLINICAL LECTURES.

SYPHILITIC HEMIPLEGIA.

CLINICAL LECTURE DELIVERED AT THE NATIONAL HOSPITAL FOR THE PARALYZED AND EPILEPTIC.

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GENTLEMEN,—You have probably long since become conversant with the truth that the most important part of learning is repetition. If this be true in the process of acquiring knowledge, it can hardly be otherwise in the process of imparting it. In conveying, as well as in receiving, instruction it is essential that the knowledge which has to be securely retained should be impressed upon the learner as often as opportunities permit. It may not be the most attractive element in the process, but another lesson which you have doubtless by this time learnt only too well is that the attractive is seldom the most useful, or the useful the most attractive.

Last week we examined an example of a rare disease and considered what is known of its nature, the process of its diagnosis, and the possibilities of its treatment. You had to hear of much that is conjectured but not proved, and of much that is still mysterious. To-day I propose to show you a patient who is suffering from a common malady whose symptoms can be traced to their source with reasonable certainty by means of the methods which must often have come under your notice, but which you will have to apply so frequently that they can scarcely be too often reconsidered. This is an advantage, not only for the sake of the repetition, but because no two cases of disease present precisely the same features in state and history; and in every case you will meet with one or more elements with which in that combination you are not familiar, and only experience in applying the processes of reasoning to the facts observed will enable you to place them in their proper relation and make them yield you the guidance you require.

The patient before you is suffering from hemiplegia, from paralysis of the right side. Common as hemiplegia is, one feature of this case should at once strike you as somewhat unusual. The forms of hemiplegia with which you are chiefly familiar have been in persons of advanced life, but this patient is only twenty-five years of age, and the affection has only existed for two months. Probably you have seen some cases of the affection in young persons, but not many in whom it has come on at this period of life.

If you note the power of movement which he possesses, you will see that he can move the upper part of the face as well on the right side as on the left, but he cannot move the lower part of the face so well. His tongue is not affected; it is protruded straight. His arm is feeble; he can move all parts of it, but cannot exert force with any part, and the movements of the hand are not quite steady. His leg is also weak, so that he can only just manage to walk alone.

When you are accustomed to cases of the kind, your first thought will probably be, and, indeed, may reasonably be, what is the nature of the lesion, and your second what is its place. This is to put the chief elements in the diagnosis in the relative position which they occupy as regards the practical questions of prognosis and treatment as regards the interest of the patient. But the strictly logical order is to consider first where the lesion is, and, secondly, what is its nature. It is best to adopt this order in the case of diseases of the spinal cord, and we will adopt it now; but in the case of diseases of the brain there is no real inconvenience in considering first the nature of the affection.

The first diagnostic indications should be familiar to you. Paralysis of the face, arm, and leg on the same side must be the result of a lesion above the middle of the pons. Here the motor path for the face leaves that for the limbs and crosses over the middle line, and in disease below this point the face escapes or is affected on the side opposite to the limbs. Disease in the upper half of the pons often involves the fifth nerve on the side of the lesion,—that is, the side opposite to the paralysis of the limbs. Very rarely it does not, and the palsy resembles that which is due to disease higher up the motor path; but such exceptional cases, which are not met with in more than one case in a hundred, may be put out of consideration. Disease of the crus involves the third nerve on the side of the lesion, and opposite to the paralysis of the limbs. When these indications of involvement of the cranial nerves are absent you may safely conclude that the lesion is within the cerebral hemisphere. But where? It must be in some place in which it can damage the fibres that conduct the motor impulses, or the centres from which the fibres proceed and in which the impulses are generated. Experience shows us that there are three regions in which lesions are prone to occur and in which they may cause this effect. One is the central ganglia, the second the white substance, the third the gray cortex.

Lesions in the white substance of the hemisphere are not common.

Moreover, if they are near the cortex the effects they produce are commonly very similar to those of disease which is in the cortex. If, on the other hand, they are near the central ganglia, the symptoms which they cause are like those that are produced by disease of the latter. Hence, for practical purposes, we may leave them out of consideration, and, indeed, we are compelled to do so, except in rare cases in which the diagnosis depends upon indications too complex to be included in a general outline of the subject, such as I am now attempting to give you. Thus our problem is limited to the distinction of disease in the two remaining situations. I have spoken of the central ganglia, but a lesion there does not cause hemiplegia by its effect on the ganglia themselves. Even extensive destruction of their gray matter produces no paralysis. The hemiplegia depends upon the interference with the narrow tract of white fibres which passes between them, and which, bounding as it does the lenticular nucleus on the inner side, is spoken of as the internal capsule. When the middle of this and the part behind the middle are diseased, hemiplegia is produced, for the fibres here are those which conduct the voluntary impulses from the cortex from its "motor" or "central" region. This, as you well know, is the part whence the motor impulses leave the cortex, and disease in this region causes hemiplegia like that which is produced by disease of the internal capsule.

How can we tell in which of these two situations the lesion is? First, by the fact that cortical disease means damage to nerve-cells, and that damage to motor nerve-cells is apt to be attended by the spontaneous action which is manifested by convulsion, while disease of the central ganglia does not cause convulsion. Secondly, from the fact that the close approximation of the fibres for the face, arm, and leg in the internal capsule and the dissociation of the centres in the cortex make it common for all parts of one side to be affected in capsular, and for only some parts of the side to suffer in cortical, disease. But this is not an absolute rule. All parts of the motor region may be affected in the cortex, and only some parts of the motor part in the capsule. But it must be a very small lesion in the latter to produce only a partial effect, and a severe lesion in the former to produce a complete effect. Here we have the indication of a guiding distinction. You must consider the significance of the distribution of the palsy in connection with its extent. In this case all parts of the face, arm, and leg have suffered, but only in moderate degree. Hence we may assume that the lesion was not severe, and the distribution, therefore, is strongly in favor of the lesion being in the region of the central ganglia. The tongue, indeed, has escaped, but this is not surprising if, as we perceive is probable, the lesion is incomplete. The diagnosis is further supported by the fact that the patient did not suffer from convulsions at the onset, and has not suffered from them since. If such convulsions had occurred, or if there were absolute paralysis of the arm and no affection of the face, we should be justified in concluding that the disease was in the cortex. You may

thus perceive the chief points that must be taken into consideration in this point of localization, and you will find that they will afford trustworthy guidance in a majority of the cases which come under your notice.

We may accordingly conclude with reasonable confidence that the symptoms are due to a lesion in the central nuclei, which has caused the hemiplegia by the damage, extensive but moderate in degree, to the fibres of the internal capsule. In scanning the brain of persons who have suffered from transient hemiplegia some time before, you may sometimes see nerve-fibres passing almost intact through an area of disease which involves the gray matter on each side of them, although the gray tint of the fibres on the surface of the layer shows that many of them have suffered structural damage, although there may not have been actual interruption.

The next question is, What is the nature of the disease? This is, indeed, a double question, for we have to consider first what is the lesion which has caused the symptoms, and next on what pathological process does that lesion depend. Several features of the disease are commonly available for ascertaining the nature of the lesion, but of these one exceeds all the rest in its importance in the readiness with which it is ascertained and with which it is applied, and the security of the information which it affords. It is the mode of onset. Each morbid process develops in a certain time, which varies, it is true, but varies only between limits, and these limits constitute our guide. The onset of the symptoms is that which manifests the rate of development of the process. For practical purposes, within which the majority of the cases will be found to come, three different modes of onset are to be recognized,—the chronic, the acute, the sudden. I need not amplify the words. A chronic onset means a tumor or sclerosis, an acute onset inflammation, a sudden onset a vascular lesion. Fix, I beg you, the last axiom firmly in your minds. You may rely upon it absolutely, and you will find the value of its guidance, not seldom, when you are perplexed by the intricate maze of discordant indications. Of course, I am speaking only of organic disease, and of these it is always true that a sudden onset means a vascular lesion. It means rupture causing hemorrhage, or obstruction causing, first, anæmia, and, unless at once compensated by a collateral flow, necrotic softening.

What was the mode of onset, what was the time occupied by the onset, of the symptoms from which this patient is suffering? If you put the question to him he will tell you that they came on in the course of five or six days. Such a period is that of an "acute" onset; it is the period which suggests that the morbid process is inflammatory. But you must never be content with general statements. Always strive to obtain details, even when they seem superfluous. How important the details may be is usefully shown in this case: they change entirely the significance of the first statement. We learn, first, that three weeks before the symptoms came on he had a brief attack very much like that with which the paralysis began. He is fond, as many wise men have been fond, of finding recreation in the

violin. One day he found, while playing, that he could not draw the bow across the strings. It seemed as if it were glued to the strings. Then he found the right arm and hand were altogether weak. But in an hour or two all this had passed away. Three weeks later the same disability recurred under the same conditions, and it was accompanied by a peculiar feeling of numbness in the right arm and the right leg. When he walked he staggered, and so he continued until he went to bed. Next morning he found the arm and leg had become weaker. No change in them occurred during the following day, but in the next night complete loss of power came on, so that when he awoke he could not move either arm or leg. His speech was "thick," and, indeed, had been so upon the preceding day. Thus, when closely examined, we have a series of sudden attacks, the first in the day, after a sudden premonition such as had occurred three weeks before, the others in the night. The suddenness of onset during sleep we have to infer, but in most cases, when symptoms of considerable degree come on during sleep, their onset belongs to the class which we call sudden. We have further evidence of the truth of this in the fact that the first commencement was definitely, absolutely sudden, and succeeded a slight brief attack which was likewise sudden. So the details of the development of the symptoms show that the onset must be placed among those which indicate a vascular lesion. Which of the two processes had occurred? Cerebral hemorrhage is excluded by the age of the patient. It is not, indeed, excluded by the patient's age, in the abstract. Many of you may have seen cerebral hemorrhage in a person as young as he is. But you have seen it as the subject of a pathological, and not a clinical, demonstration. Note the difference implied in this distinction. Hemorrhage occurs in the young, but it kills them. It is not survived, and the fact that this patient is very obviously living excludes hemorrhage. It is only the subject of clinical demonstration at a much later period of life, because the hemorrhage that is survived is the result of degenerative changes practically confined to the degenerative period of life, and hemorrhage in the young is the result of disease of the larger arteries, such as permits their distention into an aneurism, the rupture of which is fatal.

Vascular obstruction it must therefore be with which we have to deal in this case. Veins or arteries may be obstructed; but the veins that are obstructed are on the surface of the brain, and we have found evidence that the lesion here is not at the surface, so we may put venous obstruction on one side. It must be arterial obstruction. This may be the result of two causes, which, widely differing in origin, have the same ultimate effect. They are embolism, closure by a plug brought from a distance, and thrombosis, closure by a clot formed *in situ*. Do not forget the distinction. The advice may seem superfluous, but it is curious how the idea of embolism dominates the minds of practitioners to the exclusion of thrombosis, and they call "embolism" whatever is not hemorrhage. But the distinction is quite as important as that between hemorrhage and obstruction.

An embolus must have a source. Almost invariably this source is a valve of the heart. To justify a diagnosis of embolism you must find a source,—that is, practically, you must find valvular disease of the heart, or, if the attack occurred some months ago, you must have a history of some malady, not long before the onset, known to cause endocarditis. Do not forget this also, because endocarditis, recently acute, may cause cerebral embolism, and yet may pass away so completely that at the end even of six months not only may there be no murmur, but the walls of the heart may have so perfectly resumed their normal state that you cannot perceive any indication that there has been any cardiac disease. In this case no cardiac disease can be detected, and, further, no malady can be heard of that will cause endocarditis. Embolism may therefore be excluded, and we are left with thrombosis as the cause of the condition, thrombosis producing a focus of necrotic softening.

But we have not yet done with the process of diagnostic analysis. Thrombosis has two causes. It is a clotting of the blood, and it may be due only to a strong tendency of the blood to clot. This, however, is very rare. It occurs in the old and gouty; it occurs in the subjects of cancer; it occurs in states of profound general weakness, and it occurs especially soon after childbirth, when the vessels of the uterus have to be closed by clot, and the tendency to coagulation may be regarded as physiological,—physiological, but, unhappily, often also pathological, as the disastrous thrombosis in the pulmonary artery shows us too often. But here we have no evidence of such diathetic states, no history of general weakness, and, since the patient is a man, we may safely exclude the puerperal condition.

The second cause of thrombosis to which we are thus reduced is disease of the artery at the spot, disease which induces the formation of the clot. Such disease thickens the wall, narrows the lumen of the vessel, often almost to the point of closure. It also changes the inner surface, so that this acts like a foreign body, and on it a coagulum readily forms. The effect is produced in greatest degree on the branches that come off where the wall of the main artery is diseased. Beyond the narrowed part the vessel is wider, but the narrowing permits little blood to flow through, and hence the circulation in the wider part is very feeble, and where the narrowing ends we have the change in the wall. Hence chronic disease of the walls of the arteries leads to sudden occlusion by the formation of a clot, and gives rise to symptoms of sudden onset.

There are only two forms of arterial disease which act upon the arteries going to the central ganglia of the brain. A third cause, traumatic arteritis, only acts upon the arteries of the convex surface, and it is, moreover, extremely rare. You know, probably, what the two conditions are,—atheroma and syphilitic disease. Each has the same effect; in each there is a thickening of the wall, a narrowing of the vessel, and especially a narrowing of the branches which the main trunk gives off at the spot, for it is

generally a main trunk which is the seat of the change. But atheroma is a senile lesion. It is a disease of the old, even more emphatically than is hemorrhage, for in extreme old age it becomes the more common lesion of the two. But this disease also the patient's age excludes.

By the mode of onset and the age of the patient, taken together, we thus arrive at the diagnosis that the cause of the symptoms must be an area of softening due to syphilitic arterial disease.

The time occupied by the onset, although the chief, is not the only guide. We may leave out of consideration those indications which apply only to patients in the later period of life, which we shall have another opportunity of considering. In the early period the distinction between the two common causes of hemiplegia, embolism, and thrombosis from syphilitic disease—for these two embrace certainly ninety-five per cent. of the cases of sudden onset in early adult life—is sometimes aided by the presence or absence of symptoms before the onset. Until the moment when an embolus is carried with the rushing blood into a vessel too small for it to traverse, the state of the intracranial structures is normal. In embolism, therefore, we have no premonitory symptoms. But it is not so in arterial disease. The narrowing of the arteries and the morbid process which is going on in their walls might be expected to cause symptoms constantly. It does so frequently, but not constantly, apparently because thrombosis occurs earlier, and with less extensive disease, in some cases than in others. One patient has headache, another has tingling or transient attacks of slight weakness in the limbs afterwards paralyzed, the result of the interference with the blood-supply to the region from which it is afterwards altogether cut off. This patient had no premonitory symptoms in the limbs, but he had headache for a month, greater during the week immediately preceding the onset. So that this symptom yields us another indication pointing to the same conclusion as that to which we have been conducted by the study of the onset and the process of successive exclusion.

Loss of consciousness at the onset is chiefly important when the distinction has to be made between hemorrhage and softening. In the latter it is more often absent than present, and it was absent here. The only help it gives is that it is rather more often absent in thrombosis than in embolism, because the latter is more violently sudden, and it seems to give rise to a more definite shock to the brain. So this indication also affords confirmation of our opinion; although it is slight it corresponds in direction with the rest, a correspondence you should never fail to notice.

There are other occasional peculiarities of onset which afford a distinctly useful indication, and such is the onset of the symptoms in the patient before you. When the paralysis comes on in a series of distinct sudden attacks, each without loss of consciousness, each increasing the extent or degree of those which preceded it, we have a form of onset which is seldom, very seldom, met with except in thrombosis. The successive attacks mean the successive occlusion of branches of the diseased vessel. When hemor-

rhage has a deliberate onset it is gradually progressive from the slow forcing of blood into resistant tissues, or there are but two stages, of which the second is attended with profound coma and general paralysis, because it is the expression of rupture into the ventricles of the brain. Thus, in this patient the features of the onset, and its immediate antecedents, entirely confirm the opinion to which we arrived from the comparative study of the pathological possibilities.

Yet there remains another question of ultimate importance which may destroy our inference, leave it unchanged, or strengthen it. It is the question whether any evidence of the assumed cause of the morbid process can be ascertained. That, in most cases, is the form in which the question must be put. But if no cause of any one of the possible lesions can be traced, it is necessary to consider whether the cause of that which is otherwise indicated can or cannot be excluded. If it cannot, the indication may be followed. Hence, in the case before us, having found that syphilitic disease is the probable cause of the cerebral lesion, we ask, Has the patient had syphilis? To this the answer is an uncompromising negative. We can ascertain no history of any primary lesion or of any secondary manifestation of the disorder which we assume to be the cause of the morbid process which has brought him now under our observation. Some of you, and many of those who are not conversant with the progress of recent observation, would be inclined to accept the negation as a decisive disproof of our conclusion. They would be wrong. We have here a pertinent illustration of the importance of the absence of disproof where proof has been found wanting. Those who see many patients suffering from syphilitic affections of the nervous system, see among them some who, as this patient, can give no account of any chancre or of any secondary symptoms, and among these there are some in whom a minute and careful examination reveals some conclusive indication of syphilitic disease, it may be in the tongue, in the throat, on the face, or in the eye, but it shows how small is the practical importance of the ignorance which might seem to some to be conclusive. There are others in whom no such indication can be found, but who at some future time come under our notice with distinct later symptoms unmistakably syphilitic. Now, the existence of these two facts makes it impossible for us to accept the patient's belief that he has never had syphilis as destructive of our diagnosis. All that it does is to cause us to ask that second question, Can the patient have had syphilis? The disease is, for practical purposes and outside the ranks of the medical profession, acquired in only one way. If there has been no exposure to the risk of contagion, we may exclude the disease and we must be wrong in our diagnosis. If there has been such exposure to possible contagion we may be right, and a sufficiently extended observation compels us to regard the negative history as then without significance. It is so in this case. For five or six years the patient has been frequently exposed to the risk of contagion, and therefore we may regard our diagnosis as unaffected by the negation,

and regard it as the expression of ignorance of the malady, not necessarily of its non-existence.

One or two features in the symptoms and in the lesion should not be passed by. The general symptoms of hemiplegia, as I said, we will defer, but almost every case presents some special features which we may not soon meet with again. Notice that the hand, although weak, presents no complete paralysis of any movement, but notice also that the movements are a little irregular. When he tries to touch his nose with his first finger, and eyes shut, he does not carry the tip of the finger straight to the tip of the nose. Such defective co-ordination is common with moderate recovery of power, and has not, as far as we at present know, any definite significance. It is not here associated with the symptom which some patients present, an ignorance of the position of the hand on passive movement. Next observe that sensation is unimpaired throughout the side. From this we infer that the posterior third of the hinder limb of the internal capsule has escaped, and therefore that the adjacent gray matter has escaped; and we are, therefore, prepared for another negative fact which you should always ascertain and note, that there is no hemianopia. There is no affection of sight, and there are no morbid changes in the eye. Syphilitic disease of the arteries and its results never cause optic neuritis. If there is optic neuritis you may feel sure that, in addition to the arterial disease, there is a syphilitic growth in some position in which it has not caused symptoms.

Lastly, look at the movements of the face, and remember that in all cases of facial paralysis it is necessary to observe the amount of interference with three different kinds of movement which take place in the face, especially in the lower part, which alone is involved in this case. The first is voluntary movement. When told to raise his upper lip and put his teeth together, you see that the movement is considerably less on the right side than on the left. The second is emotional movement, which is best manifested in the smile. But it does not do to tell the patient to smile. A patient who smiles to order produces only a voluntary and not a true emotional movement. To observe the latter you must produce the emotion. You may tickle a child, but you cannot well, without loss of dignity, adopt this method in the case of a grown-up person. But you may generally obtain what you need by asking the patient, as I now ask this patient, to "favor us with a *graceful* smile." You see that there is much less difference between the movement of the two sides than in the voluntary movement. Remember that this difference exists only when the disease is in the cerebral hemisphere, or at least above the middle of the pons. It is not seen in any case in which there is disease of the facial nerve or its root fibres or its nucleus. Lastly, the associated movement of the face, which occurs when the patient exerts force with some other part of the body, when he grasps with energy, for instance, may present a difference from the voluntary movement similar to that which is observed in the case of the

smile. It may be far more equal on the two sides, and often no difference can be detected. We do not yet know the significance of these differences when there is disease in the hemisphere, but they show that the cause of the facial weakness is in this position, and they will probably ultimately prove to have a special meaning. The last point is the state of reflex action. The patient presents an increased knee-jerk and a foot-clonus on the right side; these, as you know, show that there is secondary degeneration in the pyramidal fibres. But the plantar reflex is almost absent on the right side while active on the left, and there is a distinct difference in the abdominal reflex, although it is less conspicuous, because, as is often the case in adults, this reflex action is not readily obtained. Such a contrast between the two forms of reflex action is common in hemiplegia, and is very remarkable. It is also mysterious, because we do not yet know to what the diminution of reflex action from the skin is due. It is present immediately after the occurrence of the cerebral lesion, while permanent increase in the myotatic irritability does not manifest itself until towards the end of the first week. We urgently need a series of careful observations on the position of the cerebral lesions in cases in which this diminution in the superficial action is present, and their position in the cases in which it is unchanged. It is not a recondite subject, and I would commend it to your notice.

Regarding the lesion, several points demand our notice. What is the change in the walls of the vessels which we have assumed to exist in this case? I show you under the microscope some sections of such diseased arteries, which have been prepared by Dr. Taylor. They show very beautifully the main features of the morbid change. You can see that there is a very extensive growth of cells and fibres in both the inner and outer coat of the vessel, the separation between the two being indicated by the wavy line of the elastic lamina. You may also see that the growth has almost closed the chief vessel, and that some branches which are divided in the section are completely occluded.

This disease of the arteries causes nodular swellings on the external surface, often considerable in their prominence. They are less translucent than the normal wall, but less opaque than the enlargement which occurs in atheroma. That is because, prone as syphilitic tumors are to undergo caseation, the tendency is slight in these arterial growths, and hence we have not the dense opacity which is due to fatty degeneration in the senile lesion. The change is especially common on the basilar artery and on the middle cerebrals, and in this case we can have little doubt that such disease in the left middle cerebral has occluded those branches which go to the central ganglia through the anterior perforated spot. It probably has not arrested the circulation through the main trunk, and so the cortex is intact and the patient has escaped the impairment of speech, which is the common result of the softening of the cortex, which occurs when the main trunk of this vessel is occluded.

But I would call your attention to one point, which is not, I think, re-

marked in any text-book. If the patient has been subjected to treatment, the disease in the wall of the artery is considerably changed. The swelling diminishes and may be scarcely recognizable, but the wall is still a little thicker and a little more opaque than normal. The aspect resembles that of slight atheroma far more closely than does the syphilitic disease in its recent and unaltered state. You must therefore be prepared for this appearance in the case of many patients who have been under the care of those who recognized the cause of the symptoms. Often you find such old disease, altered in the manner I have described, in one artery, and in another artery recent change of characteristic aspect. Not long since I met with a very instructive example of this, most instructive, also, in its clinical manifestations. The patient was a doctor, thirty-five years of age, of reticent habits, who had suffered from a sudden brief attack of loss of speech. Six months before, he was attacked with sudden symptoms of an extremely grave character. Rising in the morning well, although there was some reason to believe that he had suffered from headache for a few weeks, he was suddenly attacked with difficulty of articulation and with mental stupor, deepening in a few hours almost to coma, and attended by paralysis of the right arm, right leg, and lower part of the face, complete paralysis of the muscles of the left eyeball, and almost complete of those of the right, with immobility of the pupils, the right being small and the left dilated. So he continued for two or three days, and then, with rising temperature, he died. The symptoms pointed conclusively to a lesion of the oculo-motor nuclei beneath the corpora quadrigemina, greater on the left side and extending through to the motor tract, a lesion of sudden onset, and therefore vascular, and, from the reasons we have considered in our review of the case before us, certainly due to vascular occlusion, to arterial disease, and almost certainly to syphilitic disease of the basilar artery and posterior cerebrals. The attack six months before might reasonably be ascribed to similar disease in the middle cerebral of the left side, disease which, on the assumption that he was conscious of previous syphilis, would naturally lead him to take iodide of potassium, the influence of which would be to prevent, for the time, further effects of the disease. He could easily have obtained it, and would have been unlikely to communicate his apprehensions or self-treatment to any person. The omission of the drug, or possibly, even, as we shall presently see, its too long continuance, would have permitted a fresh development of arterial disease in the basilar and posterior cerebrals, with resulting and fatal thrombosis within them. Such was the opinion expressed on the first examination of the patient, the day after the onset, and the subsequent condition afforded me no grounds for changing the diagnosis. The post-mortem examination showed its correctness in a degree which would be remarkable, were it not that the elements of the diagnosis were simple, and only required trust in the process of reasoning to induce confidence in the conclusion. There was thrombosis of the front of the basilar, extending into the posterior cerebrals, further into

the left, and on this there was a characteristic nodule of syphilitic disease, while slighter thickening, narrowing the cavity of the vessels, was seen on the other posterior cerebral and on the front of the basilar. In the middle cerebral, within the fissure of Sylvius, was an area of altered wall of greater opacity and thickness, but without much prominence, precisely the aspect I have mentioned to you as left by syphilitic disease which has been removed by treatment, and justifying the opinion that I have mentioned.

What is the relation of the vascular lesion to the constitutional affection? Although not yet demonstrated, it is impossible to doubt that syphilis, like every disease that is transmitted by inoculation, that has a period of incubation and is first manifested by exanthematous and allied symptoms, depends on a specific organism which multiplies in the system and produces germs. As far as we can read the meaning of the course of this malady, it would seem that the various morbid processes which it causes are the result of the presence of developed organisms, abundant in the blood in the exanthematous stage, and leaving germs which rest in some tissue until a time comes when they develop and give rise to a process of tissue-growth such as that which we have been considering in the walls of the arteries.

Accumulated and accumulating experience leads us to the conclusion that the remedies employed for this disease—mercury in the first rank and iodide of potassium in the second—destroy the developed and developing organisms, and remove, or promote the removal, of the tissue-growth which the organisms have caused. Hence the manifestations of the disease in the early florid stage, or the later occasional effects, may be with certainty swept away. But the agents seem to have no influence on the germs which are deposited in the system and are not yet in the process of development. You are doubtless familiar with the fact that the germs of bacterial organisms have far greater power of resistance than the organisms themselves; that they resist, for instance, temperatures which are fatal to the latter. Hence the removal of the symptoms at any stage of the disorder does not free the patient from the liability to the occurrence of future symptoms, the result of the development of the germs that have been untouched by the therapeutical agent that has been employed. The most thorough treatment at any stage of the disease does not prevent its future manifestations, and the freedom from these is as frequent in those who are not so treated as in those who are. It depends on the disease, on the amount of organized material in the system, and on no other element. It is in this sense that I have expressed my conviction that syphilis as a disease is not curable. I have been taken severely to task for the assertion, but it has received no dissent from those who know most of the malady, and whose opinions deserve chief attention. I believe that the statement is the assertion of an incontrovertible truth.

All that we have hitherto considered is but the path to the problems that are of practical moment,—those that concern the interest of the patient,

—and, therefore, to us as practitioners are of paramount importance. These are the prognosis and the treatment, the attempt to forecast the future, and the attempt to remove or lessen the symptoms and to prevent their return.

Strive, gentlemen, when you consider the prognosis of such affections, to form a mental picture of the morbid process. Note its elements, their mutual relation, and their relation to the symptoms. You may perhaps be surprised to perceive, when you do this, that in all cases of true syphilitic lesions of the nerve-centres the symptoms do not directly depend, in every case, upon the syphilitic process itself. This is conspicuous in the case of the disease with which we have to deal to-day. The symptoms depend on the necrotic softening of the brain, which is precisely the same as that which would be caused by any other form of arterial closure, by embolism, or by thrombosis due to any other mechanism. It is the result of the arrest of the blood-supply, and the clot which finally stops this is also common and not specific. It is only when we reach the cause of the narrowing of the artery that we reach the actual syphilitic element in the process. But you cannot fail to perceive, further, from these facts, that the course of the symptoms must be altogether independent of the course of the arterial disease which led to the obstruction. Remove the disease in the artery; it still remains impervious, and ultimately becomes a mere fibrous thread; nothing can restore its cavity and the destroyed brain-tissue, also nothing can renew. Such a patient will improve, partly by the recovery of the least damaged structures, partly and chiefly by the compensation which happily the other hemisphere is able to effect in the case of all movements which are related to both sides of the brain, those in the upper part of the arm and face, and the chief movements of the leg. But the future course of the paralysis, in every case of the kind, will be the same as if the obstruction were the result of embolism, and the fact must be frankly recognized. Do not, as is so often done, assure a patient with hemiplegia of a year's duration that he will recover, because his malady was the result of a process which you know can be removed, and which most likely has already been removed.

Is treatment therefore useless? By no means. Its importance is great, and the greater the sooner after the onset you can apply it, and it is greatest of all before the onset, when the shadow of the coming disaster is thrown by premonitory symptoms, and when the substance may very often be averted by the prompt recognition and energetic treatment of the morbid process. I am certain that in cases which have come under my notice this result has been achieved, and palsy, perhaps life-long, and sometimes even death, have been averted. In this patient we have an illustration of the opportunity which many others present: when he first felt the disability in the arm, the merest suspicion of its possible cause would have justified treatment which would certainly have averted the sequel. After the closure has done its work, and the softening has produced its symptoms, treatment can do nothing for that which is, but it may still do much for that which may be. We cannot tell how many other arteries are diseased, how many

other branches are in imminent danger of being closed, and it is essential, therefore, at once to give the patient iodide of potassium, seven or ten grains three times a day, and even fifteen grains for the first few days, with, if you like, mercurial inunctions. I believe that this dose of iodide is adequate, and will do all that can be done in the course of four or six weeks. It is better not to give larger doses, because coagulation of the blood plays a part in the mechanism of destruction, and large doses of iodide, as the treatment of aneurism has taught us, increase the tendency of the blood to clot. Of even more importance is it not to continue the iodide beyond six weeks or, at most, two months. In that time, as visible processes show us, all the specific element in the process is removed. If recovery is not complete, it is because the simple elements may take yet a longer time to pass away, or may be of such deeper character that they must persist. If you go on with iodide for four or six months, you may find the process that was at first arrested regains activity, and the very same syphilitic process may actually kill the patient, in spite of the continuance of the treatment which at first arrested it. Apparently the organisms become acclimatized to the presence of the agent, are able to resist it, and thrive in spite of it. Analogous phenomena are known, as I have hinted in the case of similar organisms and the effect of high temperatures. But while you should not continue the treatment, you should always resume it. After three or four months' cessation it is as effective as at first.

I consider that every patient who has had syphilis should for at least eight years from the primary disease, or five from the last manifestation of it, take a course of iodide for three weeks twice a year. In this way developing organisms which have not yet caused tissue-changes sufficient to produce symptoms may be destroyed, and in many cases it is certain that this measure would save the patient from grave disease. We cannot see the result, but in this it is but on the level of all the other forms of preventive medicine, the branch of our professional work to which we may look up with the highest pride, and go on with, confident in its unseen achievements, despite the fact that the recipients of its greatest blessings are all-unconscious of them, as they are always of the health they enjoy until they lose it, and of the air they breathe until the last breath may bring to their mind the flash of revelation, all too late.

THE DIAGNOSIS AND TREATMENT OF GASTRIC ULCER.

CLINICAL LECTURE DELIVERED AT THE CHARITÉ HOSPITAL.

BY PROFESSOR POTAIN,

Member Academy of Medicine; Physician Hôpital de la Charité, Paris.

GENTLEMEN,—A patient in our wards presents an interesting example of the difficulties with which we are confronted when we endeavor to put a proper interpretation upon the occurrence of hæmatemesis. In arriving at a diagnosis it is well first of all to satisfy ourselves whether it is really blood that has been ejected, and next to inquire what is the condition that produced it.

The woman in question is forty-three years of age, and presents a number of symptoms pointing to hysteria, together with anæsthetic zones. She says that for three years past she has been suffering from gastric trouble, twice having vomited blood in very large quantities. She is thin, but not cachectic. When we palpate the region of the stomach we find it very painful, but there are no signs of softening of its walls nor of the reverse condition of hardening, and no evidence of a tumor. What is the disease that caused this vomiting of blood? But, as we said, we must first of all be sure that it did really occur. We must be careful not to make an error of diagnosis, especially with these hysterical patients, for they have been known to drink blood and vomit it up to pretend that they are suffering from hæmatemesis. In this case, however, we do not doubt what she says, but it is very difficult to be absolutely sure of such a thing when we have to decide some time after it has taken place, as in this patient. In certain forms of epistaxis bleeding will occur into the stomach, as is often seen in young children or in the course of any adynamic disease. Such an etiology can be excluded here. We must also make the diagnosis between hæmatemesis and hæmoptysis,—a differential question which is not so easy as you might at first suppose. Of course morbid antecedents and the well-known symptoms that relate to the stomach itself, or to the lungs, and the character of the vomited blood must all be considered. Is the blood arterial in color or not? Is it frothy as seen in hæmoptysis or mixed with food as in hæmatemesis? Then the cough, heat in the throat, and the choking sensation that accompanies hemorrhage from the lungs, and, on the other hand, the vomiting with a sensation of gastric distention as seen in hemorrhage from the stomach, are all important aids to diagnosis if they can be elicited, but they are by no means constant signs. In our present patient we have founded our diagnosis on the fact that she has suffered from stomach-

troubles for a very long time, and we cannot get any evidence of pulmonary disease by auscultation or percussion. Then as to the blood, she says it comes all at once, and, what is more important, does not continue to appear after the vomiting is over. This is an important point in diagnosing gastric hemorrhage. It is true that severe hæmoptysis may occur and be accompanied by efforts at vomiting, but this always drags along and is accompanied by spitting of blood for some time afterwards, while the vomiting of blood from the stomach stops entirely and completely once it is over.

We may admit, then, that a hæmatemesis actually took place in this patient, but the diseases in which this occurs are numerous, the most frequent of them, it is true, is cancer of the stomach. In such cases the blood is not very abundant as a rule, and it is usually black in color, resembling coffee-grounds. But as there are no signs of cachexia in our patient, we may put this disease aside, and we may also eliminate the hæmatemesis which is sometimes seen accompanying venous stasis caused by liver-trouble, such as cirrhosis or multilocular cysts, as well as that from aneurism, leucocythemia, malaria, and Bright's disease. The very intensity of the stomach-trouble does not permit us to think of possible rupture of varicose veins of the œsophagus as having been the cause of this hemorrhage, or of one of those hemorrhages having occurred which are seen in hysterical patients due to paralysis of the blood-vessels; in point of fact, these mostly come on after a suppression of the monthlies or from a hemorrhoidal cause. We can also exclude the hemorrhages due to traumatism, contusion of the epigastric region, etc., or those internal ones which are caused sometimes by the injection of some foreign body, as a coin or the like. The intense pain, its seat in the epigastric region, and also in the dorsal at about the same level; its appearance soon after food has been taken, and the character of the hæmatemesis, its great quantity, and the whole evolution of the disease, allows us in this case to be pretty certain that we have to do with a gastric ulcer.

The diagnosis of this malady in its incipiency is very often a difficult matter. It can be mistaken for cancer of the stomach without infection of the lymphatic glands or cachexia; in such a case the diagnosis would be assisted by the formation of extensive cicatricial tissue or by peritoneal inflammation in the region of the stomach. The intense pain after meals, which has its seat in the epigastrium and runs back to the dorsal region of the spine, is a good sign, as in cancer the pain is not very great as a rule. What can be the cause of this stomach ulcer in this woman? She does not drink, does not remember to have swallowed any foreign body or caustic liquid, and is not in the habit of taking an unusual amount of hot drinks. She has never had typhoid fever, and does not present any sign of tuberculosis. We cannot learn that she has ever had any profound sorrow or worry. Three years ago she says she fell down-stairs and fainted. She does not remember whether she got any contusion of the epigastric region or not then, but we have seen gastric ulcer develop in women after such falls

who had received injuries from their corset-bones, so that some similar traumatism may have been an exciting cause in this woman.

While we think that this is a cause of ulcer, we do not believe that it is necessary to make a separate class of such ulcers and call them "traumatic gastric ulcers" as some authors do, because their anatomical characters are the same as other ulcers. Their seat is generally along the lesser curvature of the stomach, and their evolution is the same in all such cases. Sometimes it is possible to suppose a chronic form of traumatic ulcer of the stomach, when, for instance, the patient is in the habit of stooping continually at his or her occupation, as the shoemaker or the seamstress. The pathology of such ulcers does not differ from the pathology of the more common type. It is always a destruction of the mucous membrane, which ceases to protect the inner walls of the stomach against the digestive action of the gastric juices. The possibility of this destruction has been proved by experiments made upon animals, and curiously enough, no matter where the contusion occurs the rupture of the membrane always occurs at the lesser curvature of the stomach.

The prognosis of gastric ulcer is always grave, as it is a very tenacious malady, often recurring on the slightest error of diet. There are also numerous complications which may add to the danger at any time. Tuberculosis is not by any means a rare complication, owing to the impaired nourishment of the body. Cancer is sometimes grafted upon an ulcer which may be either in an active or a chronic state.

As to the treatment of these cases: All other diets except one exclusively of milk seem useless, and not the slightest particle of other food must be allowed. Milk, and milk only, must be continued for a long time, when with great care a vegetable diet may gradually be substituted. It is a curious fact that vegetarians seldom have gastric ulcer, while it is common in meat-eaters. The efficiency of the milk treatment seems to be due to the fact that it is not irritating, and that the gastric juices are less disturbed by it than by other foods, and the amount of acid to be secreted is not so great. It is curative also, because it permits of the stomach not being entirely empty at any time, for the milk should be given in very small quantity at short intervals. When the stomach is entirely empty the gastric juice is free to act upon the ulcer. It naturally follows that it is wise to keep some bland form of nourishment constantly in the stomach so that the unemployed secretions may not act upon the damaged stomach wall. Drugs are rarely called for. Revulsion is perhaps the best therapeutic agent for the pain, as it does not interfere with digestion. Remedial agents should be resorted to in accordance with the symptoms.

HEMIPLEGIA; OBSCURE BRAIN LESION; CEREBRAL INANITION.

CLINICAL LECTURE DELIVERED AT COOK COUNTY HOSPITAL, CHICAGO.

BY DANIEL R. BROWER, M.D.,

Professor of Mental Diseases, Materia Medica and Therapeutics, Rush Medical College; Professor of Diseases of the Nervous System, Woman's Medical College, and Post-Graduate School, etc.

LADIES AND GENTLEMEN,—We have here a case of nervous disease that was brought before the class some time ago as an example of hemiplegia, doubtless from cerebral hemorrhage. Since that time there has developed a very interesting and important symptom; important in the matter of diagnosis, and interesting in that it shows more clearly where the lesion is located, and gives us to a certain degree some idea of its extent. This symptom, which has developed within a week or two, and to which I ask your attention, is late contracture, late rigidity.

You notice the position of the hands: the fingers partially closed and the thumb enclosed in the grasp of the fingers. It is almost impossible, without persistent effort, to straighten his fingers, and just as soon as the effort is stopped the fingers involuntarily resume their position again. The same is true of the thumb; by persistent effort I can straighten it, but the moment I let go it resumes its former position, characteristic of late rigidity. In these cases of paralysis there occurs within the first day or two an early contraction, but that condition soon disappears, and is the result, possibly, of irritation produced within the brain by the blood-clot. Accompanying this late rigidity there are usually exaggerated reflexes. You notice when I tap this muscle how promptly the fingers respond to the touch, and the movements here are exaggerated. This symptom of late rigidity, with the exaggerated reflexes, shows us conclusively that the lesion in his case has involved the internal capsule. The probability is that the hemorrhage occurred in one of those vessels which supply the optic thalamus and the corpus striatum. The optic striata arteries in their course from one basal ganglion to the other pass to a certain extent through the internal capsule, and the hemorrhage has occurred in this place and destroyed the motor tracts in the internal capsule. Now, when these motor tracts in the brain, that connect the psycho-motor convolutions with the parts below, are damaged, there is loss of the inhibitory control over the reflexes. We have exaggerated reflexes in some forms of spinal disease because the disease is located in such a way as to cut off communication between the brain, that regulates, controls, and inhibits the reflex action, and the reflex apparatus in the spinal cord.

This case also shows us something more. The late contracture indicates that the hemorrhagic focus at this point in the brain has been followed by a descending degeneration which has cut off not only the psycho-motor centres, but also the trophic centres, which regulate the nutrition of the whole motor tract. The process of degeneration, which began at the hemorrhagic focus, has now travelled down the spinal cord until it has reached the cervical enlargement, and if you were to make an examination of this man's cervical spinal cord you would find the lateral columns in this part in a state of degeneration, the manifestation of which you see in these contractions. The degeneration that has gone thus far will not stop here. Let us see if there is any contracture in the feet. When I push this limb back you see an involuntary twitching, a very well marked ankle clonus. There is also a very exaggerated patellar tendon reflex, but the foot is perfectly movable; there is no rigidity at present, but after awhile this man's heel will be drawn up and his toes extended, indicating that the degeneration in the lateral columns of the cervical region has extended down to involve the lumbar enlargement. That is the pathogenesis of this interesting symptom of hemiplegia, but it has a still more important bearing. When you see a case of hemiplegia that has the marked contracture that this case has, you will know, as I have already said, that the destruction is beyond the reach of any remedy, so far as the particular member which has shown the contracture is concerned. It is useless, therefore, to attempt any improvement in his hands.

I believe that, as a rule, a doctor can establish more of a reputation by giving an accurate prognosis than he can by his diagnosis or manner of treatment. Everybody expects a physician to cure his patients, and he is blamed if he does not. But if a physician in a case like this one frankly admits that he has done all that he can, the patient, loath to give up, will consult one doctor after another, until some one little informed or injudicious gives him a favorable prognosis. As a result that doctor, after a variable period of medication, loses both patient and reputation, while the former has retained the confidence of the patient's friends. There exists throughout the community to-day, just as there has existed from time immemorial, a very great admiration and veneration for the man who can look into the future, and the doctor who can tell his patient just about what is going to happen will have the most enduring confidence of the people. Study to be renowned prognosticians.

I have brought this man before you to illustrate this very point, to emphasize the value of prognosis.

You remember, when this man was before you a few weeks ago his loss of speech was complete; he has now, to a great extent, recovered from this aphasia. The speech-centre in the brain, you remember, is usually located in the left third frontal convolution. The communication between this and the mechanism of speech in the medulla, which was temporarily cut off entirely, has been partially restored. I think this communication takes

place sometimes by other tracts, for I cannot conceive it possible that nerve-fibres that have been completely destroyed can ever be restored, but I have seen so many cases of complete aphasia in which there has been recovery that I can believe it is possible to establish a connection only by new channels of conduction between the mechanism in the medulla, by which we talk, and the third frontal convolution, by which we convert ideas into language. Although in this case there may have been but slight interference with the line of communication, at all events it has been, as is very often the case, perfectly restored.

The patient has also fairly regained the use of his leg. The first time he was before the class he could not walk at all. The motion which he has not regained in the foot is the very last movement the infant acquires in walking,—the power to raise the toes and throw them outward. You see he drags his toes. The last things we gain in life are usually the first we lose. The movement of his toes outward and upward he has lost, probably never to regain.

Case II.—This case is a very peculiar one, and I do not know that we can tell you just what is the matter.

History.—Father and mother died of consumption; patient drinks beer, smokes, and chews; venereal history denied. Present illness began two weeks ago with pain in right chest and severe cough; vomits frequently; has anorexia, excessive thirst, and some diarrhœa. Complains of severe pains in the knees and back, muscular cramps in the legs, chilly sensations, severe headaches, epistaxis. Heart normal. There is a tenderness in the epigastric region. Patient was admitted on the 12th of this month; on the 14th there were friction râles over the right lung, and almost universal pain and tenderness in the joints; on the 17th he was found in a condition of general muscular rigidity and unconsciousness, eyes turned upward, pupils alternately contracted and dilated. On forcibly separating the hands the muscles were relaxed.

Some of you have been observing this patient closely. It is of the greatest importance for a student to acquire the habit of close observation. You cannot always tell what is the matter with a patient by looking at him, but you can very often locate the disease, at least in part, from the facial expression. This man's trouble was supposed to be within the pleural cavity; he was thought to be suffering from some thoracic disease, complicated by an affection of the joints. But the moment I looked at him, without having heard a word about the case, I judged that the disease was intracranial. Though at this moment he does not show it, when his bed was first pulled in front of you his eyes worked from side to side with a rapid oscillating movement, termed nystagmus, a sign strongly indicative of intracranial trouble. Yesterday he had also a contracture of the occipito-frontalis muscle; you see the lines are still very strongly marked on the forehead. I do not believe this occurs except as a result of intracranial disturbance. Yesterday the pupils were contracted to the size of pin-points,

just now they are normal in size. They, however, do not respond to light, a fact significant of some intracranial or cervical spinal lesion.

You notice when the patient's tongue is extended what a marked tremor it exhibits. This, of course, may be present in any depression of the nervous system, but it always denotes profound disturbance of the brain. You have it in typhoid fever and typhoid pneumonia, and in general nervous prostration, because these depressions generally also involve the brain and interfere with its nutrition.

These several symptoms all lead us, in my judgment, to locate this man's disease in his brain. Whence, then, his thoracic symptoms? The pneumogastric nerve has its origin in the brain very close to the hypoglossal nerve, which moves the tongue. The pneumogastric is the trophic nerve for the chest, and if it is diseased at its point of origin, as a matter of course, its functions are not well performed. The thoracic symptoms, I think, may be referred in this case to an intracranial source.

I saw yesterday, in consultation with Professor Danforth, quite a remarkable instance of this. The patient in question had a general myelitis, which involved both legs and, to a very large extent, the arms, the anæsthesia having travelled pretty far up the chest.

The most striking symptom that occurred in the beginning of that case was derangement of the renal function. There were blood and traces of albumen in the urine; and the day I saw him the urine still presented discoloration by blood-pigments, although the doctor could find no blood-corpuscles. Dr. Danforth, who is an expert, agreed with me that his urinal symptoms were due to vaso-motor paresis of the kidneys, resulting from disease of the spinal cord.

Looking at that case, as at first presented, it looked like acute nephritis until the spinal symptoms began to show themselves. I think the bloody urine arose from a disordered function of the splanchnic nerve. It may be that this man's joint-affection is of the same general character, trophic in nature. Yesterday this patient was in a state of general rigidity, so that I could not pull the arms apart nor move his legs. Of course these symptoms do not belong to the brain, but they may be secondary to some brain disturbance. There is no rigidity of the limbs now. Yesterday he was in a state of tonic convulsion which lasted five or ten minutes; such convulsions, as a rule, come from some disorder in the functions of the medulla, the convulsive centres there being in a state of irritation. The occurrence of these convulsions and the intrathoracic symptoms look very much as if the lesion, whatever it is, affects the medulla. You notice the man's intellection is very poor, an additional indication of the intracranial nature of his trouble. Just what the lesion is I do not know. He has been for years a free user of alcohol; this may have some bearing upon the question of etiology. I do not know of any other agent that is more destructive to the higher functions of the brain than alcohol. It tends to the hyperplasia of the lower tissues; it causes the neuroglia of the brain to grow, but at

the expense of the delicate structures. This may be simply a case of alcoholic degeneration of the brain. The condition of his nose, on the other hand, might lead us to believe that his condition is due to syphilis.

In cases that present these general aspects I usually combine an alterative with tonic treatment. No matter whether this man's condition is due to alcohol or to syphilis, the mild use of alterative remedies will tend to lessen all the grosser elements produced by alcohol or syphilis. I would give this man bichloride of mercury in doses of one-fortieth of a grain, associated with iron, quinine, syrup of hypophosphites, and strychnine. The alteratives tend to tear down the grosser elements, the tonics to build up normal tissue.

CASE III.—Here is a case like the other, not very strongly typical of anything, and yet the man is in a very grave predicament. The gentleman who called my attention to the case yesterday thought it one of insanity, and that the proper thing to do was to remove him to a suitable hospital. You see by his talk that there is mental derangement: his ideas yesterday were very different from what they are now, but of the same type. He evidently has intellectual impairment. Though generally quiet and inoffensive, he has these abnormal notions. He told a story about being shot and two balls remaining in him, with less mental manifestation than you or I would have shown in a similar case, and related it without any special emotion. We see his emotions are not in proper order, and we know that his intellectual condition is impaired; but I do not regard it as a case of ordinary insanity, and object to its being treated as such. Yesterday his teeth were covered with sordes. You see that there is some trembling of the tongue, and that it is badly coated. You notice that he has a cough, and that he is very much emaciated. It may be that the foundation of this man's condition is tuberculosis; but I brought him before you especially to show you the difficulties often met with in making a diagnosis, and then to tell you that the condition of his intellect, his emotions, and whatever intracranial disturbances he may have, I believe may be altogether due to inanition and brain starvation. You see that there is starvation of the muscles; that is no sort of an arm for a man to have, and starvation of the brain-cells to match that arm would, I think, account for all his intracranial symptoms. It is not right to classify as insane those cases due to some such error of nutrition as this. The insane hospital may be the best place to take care of them, but they are not ordinary cases of insanity. His mental derangement is secondary to some gross interference with the nutritive process of his body generally. It may be due to alcohol, because alcohol is capable of producing the amount of general impairment of nutrition which he shows. It may be tuberculosis; I strongly suspect, from the character of the cough, that it is; but whatever it may be, it is simply a state of mental disturbance in consequence of imperfect brain nutrition. His pulse is feeble, and his whole organization is far below par. Muscle starvation combined with brain starvation, it seems to me, has been the foundation

of his mental disturbance. He has had a little rise of temperature almost every evening, going up as high as 102° F. We have no such disturbance of temperature in insanity. The temperature indications rather point towards tuberculosis, which, as you know, may be a secondary consequence of depression of the body from alcoholism. The physical signs, upon examination of the chest, are, however, negative. In insanity we do not get any such variations of temperature as this man has. In cases of acute melancholia, especially in the very early stages, there is depression of temperature, and in violent mania there is some rise of temperature; but the elevation is continuous, it does not show the variations here apparent.

REVIEW OF MEDICINE.

MEDICINE.

IN CHARGE OF JOSEPH P. TUNIS, A.B., M.D.,

Assistant Demonstrator of Surgery in the University of Pennsylvania; Surgeon to the Dispensaries of the Presbyterian and of the Methodist Episcopal Hospitals; Visiting Physician to the Children's Dispensary of St. Clement's Hospital and to the Church Home at Angora, Philadelphia.

Oxaluria and its Relations to Certain Forms of Nervous Disease. (*New York Medical Record*, June 3, 1893.) By I. Adler, M.D.

This subject is one of great interest and difficulty, while our knowledge of even its elementary chemical and physiological bearings is still very uncertain. From a number of experiments and observations the writer is justified in drawing the following conclusions:

1. Oxalic acid is a normal, though possibly not a constant, constituent of the urine.

2. The amount present in a given quantity of urine can be determined with any degree of reliability only by quantitative analysis. All approximations by means of microscopic examination are untrustworthy.

3. The chief source of oxalic acid in the urine is the oxalic acid contained in the food, though it is probable that minute quantities are produced in the course of normal metabolism. Further investigation will have to demonstrate if, and under what conditions, morbid metabolism affects the production of oxalic acid.

4. Impeded respiration, diseases of the heart and lungs, do not of themselves tend to produce an excess of oxalic acid in the urine.

5. The establishment of pathological oxaluria as a type of disease *sui generis* is not warranted by the facts at present at our command.

6. The nerve symptoms assumed as characteristic of pathological oxaluria are not caused by an excess of oxalic acid in the blood and in the

urine. Analysis will show that such excess is by no means as frequent as has often been assumed.

7. Where such excess does occur not to be accounted for by ingesta, it is probably one of several symptoms of metabolic alterations primarily caused by disturbances of the nervous or digestive organs, or both, but no factor in the causation of disease.

8. In considering the excretion of oxalic acid in the urine it is of the utmost importance to take into account at the same time the excretion of the other principal constituents, particularly urea and uric acid.

The Treatment of Pneumonia in St. Francis Hospital. (*New York Medical Record*, July 1, 1893.) By Arnot Spence, M.D.

After an experience with two hundred and twenty-eight cases the writer can recommend the following plan of treatment. In the first place, the bowels should be freely moved with five grains of calomel, well rubbed up with sugar and milk, or if the patient is too weak a more gentle laxative may be employed. A half-ounce of the following prescription may then be given every two hours:

℞ Tr. aconiti, ♏xxiv;
Tr. opii camphoratæ, ʒij;
Liq. ammonii acetatis,
Syr. zingiberis, āā ʒss;
Aquæ, q. s. ad ʒvj.—M.
Sig.—Half-ounce every two hours.

The aconite is given primarily for its effect on the heart and blood-vessels, and thus on the inflamed lung, and secondarily to reduce the temperature. It produces a quieting and slowing of the irritable and rapid heart, and a reduction of the arterial pressure, thereby lessening the amount of blood in the congested lung. It controls the temperature within a safe range, and prevents the marked exacerbations so common in typical cases of this disease. In strong and full-blooded patients, veratrum viride may be substituted for the aconite in this mixture, and used in about the same dose. The paregoric is added to ease the short and harassing cough, which is often such a disturber of rest. The spirit of mindererus acts as a diaphoretic, keeping the skin moist, and in its way relieving the kidneys to some extent. Besides assisting thus to keep the temperature down, it is also a stimulant.

Throughout the administration of this mixture the heart was most carefully watched to note the effects of the drugs, and, all things being favorable, it was continued until the fall in temperature denoted the crisis of the disease. When further stimulation seemed necessary, whiskey was freely given, but never unless it was indicated. The administration of alcoholic stimulants all through this disease, as is frequently done, is a practice capable of doing great harm.

Observations upon Disease of the Appendix Vermiformis and its Results. (*Edinburgh Medical Journal*, August, 1893.) By J. O. Affleck, M.D.

Within the last ten years much has been done to place this subject on a firm scientific basis. A fortunate result, to which the studies of American physicians and surgeons have largely contributed. While the term "appendicitis" is not altogether satisfactory, it is much more accurate than "typhlitis," and is at present the most convenient term to use.

M. Talamon's theory that almost all cases of disease in this locality are due to the irritation produced by scybalous fecal concretions in the appendix, while very plausible, lacks the support of sufficient confirmatory proof. Thus, of one hundred and forty-six adult cases recorded by Matterstock only sixty-three had fecal concretions, and nine foreign bodies. In the remainder, one-half the cases, no such condition was found. Mr. Treves supports the view that torsion of the appendix is responsible. But there are frequent exceptions to this view. It is probable that disease in this locality may arise from a variety of causes, the exact determination of which in a particular case is often extremely difficult.

While the diagnosis of the milder and more common cases is generally an easy matter, it is often impossible to decide positively as to the presence of pus in the neighborhood of the appendix. In dealing with any form of appendicitis a rectal examination ought to be made, and will be found in many otherwise doubtful cases to assist in establishing a diagnosis. Searching for pus by exploratory puncture is generally and properly condemned.

Prophylaxis in the form of properly restricted diet, regulation of the bowels, etc., is highly necessary in any case where there may have existed previous symptoms of the disease. The great majority of cases recover under the very simple treatment of rest, opium, light diet, etc.,—presumably cases of moderate inflammation of the appendix with localized peritonitis. While the presence of pus is difficult to detect in certain cases, its presence must always be a constant source of danger. Operative interference should be resorted to at the earliest possible moment.

THERAPEUTICS.

IN CHARGE OF ALEXANDER D. BLACKADER, B.A., M.D.,
Professor of Therapeutics, McGill University, Montreal, Canada.

ASSISTED BY

D. I. EVANS, M.D.

Tropacocaine in Ophthalmic Practice.—Dr. George Ferdinand (*British Medical Journal*, June 24, 1893, p. 1318) thus sums up his experience in the use of tropacocaine. Tropacocaine is more reliable than cocaine. Its action appears to extend more deeply, and the anæsthesia it

produces lasts a little longer. During its action there is complete absence of the haze over the cornea which is so characteristic of cocaine anæsthesia. The strength of the solution depends on the requirement. For general use two or three per cent. is sufficient, but a five-per-cent. solution may be used with safety when anæsthesia of the deep-seated parts is required. Its solutions, prepared with distilled water, keep well and retain their strength for months. In solutions of the above strength it gives rise to no disagreeable symptoms and evinces no mydriatic or hæmostatic properties. He has never known it to be followed by profuse hemorrhages such as have been reported by Seifert. He thinks that tropacocaine, if only for its antiseptic properties, will eventually replace cocaine.

The Pharmacological Action and Therapeutic Uses of the Nitrites and Allied Compounds. (*British Medical Journal*, June 24, July 1, July 8, 1893.) By Professor D. I. Leech, M.D.

In these Cromian lectures, Professor Leech, after tracing the physiological influence of groups of elements, drew attention specially to the groups formed by oxygen and nitrogen, and to the importance of considering whether the nitrogen present acted as a triad or a pentad. Many isomeric compounds, owing to this difference, have by no means similar pharmacological, chemical, or physical properties. Of the nitrites, the chief pharmacological characteristic is their action on muscular tissue. The amount of the nitrites possible to be present in the circulation under ordinary conditions is not sufficient to affect the voluntary muscles, but the involuntary muscles and the heart react to marvellously small quantities, which distinctly impair contractile power. This power is, however, at once regained on the removal of the nitrite molecules. Considering their powerful action on muscular tissue, the action of the nitrites on other tissues is very slight. On the nervous system the nitrites act as a slight depressant. The writer never noticed any narcotic influence exercised by any medicinal doses. The sense of distention and throbbing in the head coming on immediately after the exhibition of some of the nitrite preparations are manifestly due to circulatory changes, but the prolonged headache which does not come on always at once, and may last twelve hours or more, is due, he thinks, to the alcoholic radicles, for other amyl, isobutyl, and propyl compounds produce the same kind of long-lasting headache.

The most important feature of the action of the nitrites is the lowering of the arterial tension. This action, experiment shows, is almost entirely due to the action of the drug on the peripheral vessels, and is not due to any influence on the vaso-motor centre. Besides reducing the tension, the nitrites usually quicken the pulse, and this quickening is generally accompanied by an apparent increase in its force, so as to give the impression that a stimulating influence on the heart had been produced. Yet experimental evidence indicates that the nitrites not only do not strengthen the actual force of the heart-beat, but even in comparatively small amounts are capable

of weakening the cardiac contractions. Professor Leech attributes the greater distinctness of the pulse after the administration of the nitrites to the more marked difference between the systole and diastole of the artery, and to the greater dilatation which the radial artery may undergo.

The influence of amyl nitrite on the pulse commences a few seconds after inhalation; tension is reduced to its lowest point in forty or sixty seconds, remains extremely low for thirty seconds, then rises suddenly, and a minute and a half afterwards is only a little lower in tension than it was before the inhalation. A small dose of sodium nitrite (two grains) distinctly affects the pulse in two or three minutes; the point of lowest tension is reached in from eight to twenty minutes, and any noticeable influence ceases in from two to three hours. A decreased frequency of the pulse is sometimes seen after the nitrites; occasionally, also, irregularity, with slight intermissions. On the other hand, Professor Leech has noticed that an irregular action fairly marked before the administration of the drug became distinctly less so, or even disappeared, after its exhibition.

A point of interest in the action of the nitrites is the minuteness of the amount which will affect the circulation. One-sixteenth of a grain of sodium nitrite will produce a distinct action on the pulse in most people.

We have every reason to infer from the experiments made that the vessels of the lungs are temporarily dilated by the action of the nitrites, and that in this way the work of the right heart may be relieved. Possibly it is to this relief that some of the good results observed in dyspepsia attacks from the administration of the nitrites is due.

In some cases the nitrites act as distinct gastric irritants, owing to the immediate liberation of nitrous acid, but in general its presence causes no discomfort.

Although we should naturally expect an increase in the urinary secretion owing to the dilatation of the vessels of the kidney, yet Professor Leech says that neither in men nor animals can it be shown that any of the nitrites continuously or greatly influence the flow of urine. He does not think they can be relied on to act on the kidneys in the several classes of ailments for which diuretics are called for. They certainly, however, do not irritate the kidney.

Their effect on temperature is inconsiderable, unless toxic doses are given. Although spirit of nitre is a popular and time-honored diaphoretic, to insure such action it should be given in larger doses than is usually given. The organic nitrates and the nitrites possess very similar physiological action, probably owing to the nitrate molecule being converted into the nitrite molecule. Their action, however, is more prolonged.

Lupus treated by means of Tuberculin combined with other Measures. (*British Medical Journal*, June 24, 1893, p. 1319.) By James Donelan.

In two cases reported by this surgeon a cure appears to have been

effected by the injection of tuberculin in amount sufficient to induce a decided local reaction. The diseased tissues thus made evident were then removed by spoon and cautery under an anæsthetic.

NEUROLOGY.

IN CHARGE OF CHARLES W. BURR, M.D.,

Pathologist to the State Asylum for the Insane, Norristown; Visiting Physician to the Home for Incurables; Visiting Physician to St. Joseph's Hospital, Philadelphia, Pa.

Migraine with Recurrent Third Nerve Palsy. (*British Medical Journal*, No. 1698, p. 118.) By Dr. Snell.

The author reports two cases: one a man twenty-seven years old, affected since the tenth year, the attacks coming on at first about every eight weeks, but latterly occurring every two or three weeks, and lasting three or four days. The palsy does not completely disappear between the attacks. The second case was a girl eighteen years old in whom there were two attacks of palsy in four years. In both cases the palsy was strictly monocular.

Three Cases of Hypertrophic Pulmonary Osteo-Arthropathy, with Remarks. (*British Medical Journal*, June 3, 1893, p. 1155.) By William Thorburn.

The author gives an historical summary of the disease, a clinical description of it, and reports three cases, with illustrations. He concludes that the disease is in reality a tubercular affection of a large number of bones and joints, but that it is of a benign type, having no tendency to break down or caseate. It appears, in fact, to bear to the common "strumous" lesions of joints a relation similar to that which lupus bears to "tuberculous ulceration of the skin;" and also, like lupus, it is widely diffused, with a tendency to be symmetrical and to affect the extremities, possibly because the comparative feebleness of the circulation here favors the growth of bacilli, which are maintaining a precarious existence in the body. Should this view prove true, we might substitute for the present cumbrous designation the term "tuberculous polyarthritis."

Tumor of Pituitary Body without Acromegaly. (*Brain*, Autumn-Winter No., 1892, p. 465.)

The author reports a case of a twenty-six-year-old imbecile man presenting the following symptoms: Headache; paresis of the left internal rectus; right pupil reacts to light and with accommodation, left scarcely at all; optic atrophy in both eyes, and almost complete blindness in the left; left hand is weaker than the right; gait is unsteady; knee-jerk is present; there is no clonus. On post mortem there was found hypertrophy of the pituitary body with cystic degeneration.

A Case of Basedow's Disease and Tabes, with Autopsy. (*Archives de Méd. Experim.*, 1893, No. 3.) By A. Joffray and Ch. Achard.

A woman forty-nine years old, who, along with tabetic symptoms, showed exophthalmus, tachycardia, and tremor. On post-mortem the thyroid was found to be somewhat enlarged, the medulla and sympathetic nerve to be normal, and there were a few degenerated fibres in the vagus nerves.

Large Tumor of the Pituitary Body. (*Brain*, Autumn-Winter No., 1892, p. 463.) By Henry Hanford.

A fifty-three-year-old woman presented the following symptoms: Vomiting; headache; urine normal; paresis of the levator palpebrarum and of the right rectus internus; slight nystagmus on looking to the right; optic atrophy; left facial palsy; knee-jerk and elbow-jerk increased; wasting of the right half of tongue. At post-mortem there was found a sarcoma of the pituitary body pressing against the pons and the optic nerves.

PEDIATRICS.

IN CHARGE OF T. M. ROTCH, M.D.,

Professor of Diseases of Children, Harvard University; Visiting Physician to the Children's Hospital, Boston.

ASSISTED BY

E. M. BUCKINGHAM, M.D.,

Instructor in Diseases of Children, Harvard University; Visiting Physician to the Children's Hospital, Boston.

Variola, Varioloid, and Varicella. (*Archives of Pediatrics*, February, 1893, p. 175; *Jahr. f. Kinderh.*, Leipzig, 1892, xxxiii. 427.) By Biedert (Hagenau).

Biedert agrees with the conclusions of McCollom (*Boston Med. and Surg. Journ.*, November, 1889),—

1. That varicella is often accompanied by considerable disturbance of the general economy.

2. That varicella is not necessarily a disease of childhood only, at least not of very early childhood.[1] To which conclusions Biedert would add,—

3. Varicella is sometimes to be distinguished only with difficulty from mild cases of varioloid or modified small-pox in those who have been vaccinated. Under some circumstances it cannot be distinguished with certainty.

4. This has reference to the diagnosis only, and of course not to the real identity of the diseases.

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[1] I have met with it in an adult,—a nurse who took it from the children in her charge.—E. M. B.

Of variola he draws the following conclusions:

1. Up to the stage of eruption, variola is either not contagious or less so than later. Light varioloid is much less so than severe or very severe variola.

2. Many unvaccinated individuals show a lessened susceptibility; by others the susceptibility is so great that even one to two years after vaccination they are liable to the disease.

3. In the majority of individuals vaccination protects for seven years; in a larger or smaller number considerably longer.

4. Protection begins about eight days after successful vaccination. Vaccination after infection has already taken place does not protect; yet it is possible that the course of the disease is favorably modified, if the vaccination has been done at least seven days before the eruption.

5. Vaccination laws are insufficient in so far as they permit many children to remain for a long time unvaccinated, and thereby become possible sources of an epidemic, as was the case in the present epidemic.

6. The more persons unprotected by vaccination and by revaccination, the greater is the danger in a community of an outbreak and of the spreading of an epidemic.

7. Isolation and disinfection are the more unsuccessful, in combating the disease, the more unvaccinated and improperly vaccinated persons there are in a neighborhood. An immediate vaccination of all such is necessary.

8. Energetic ventilation and the exposure of persons who come in contact with the patients to fresh air diminish the danger of contagion. Steam disinfection of the effects removes the danger from that source. Disinfection by sulphur alone may be sufficient.

9. In regard to treatment, these studies add nothing to what is already known.

Bacteriological Researches on the Cadavers of Very Young and of Newly-Born Infants. (*Archives of Pediatrics*, April, 1893; *Mal. de l'Enfance*, Paris, 1892, x. 301.) By A. B. Marfan and V. G. Naun.

These investigations were made with the primary object of ascertaining if the delay of twenty-four hours in making an autopsy vitiated any bacteriological research. Autopsies were made in sixteen cases. Examinations were made of the blood from the heart, the pericardial fluid, the cerebrospinal fluid, the fluids from the spleen, liver, bronchial glands, and once the lung. These autopsies were all in the winter and early spring. The author's conclusion is that a delay of twenty-four or even thirty-six or forty hours does not invalidate results arrived at from bacteriological investigation.

Nephritis following Varicella. (*Archives of Pediatrics*, April, 1893, 366; *Lancet-Clinic*, 1892, xxix. 879.) By Louis Schwab, of Cincinnati.

Two cases are reported, one at the age of two years, and one at eighteen

months. Both recovered. The symptoms of renal disease after varicella are, as a rule, mild, but the cases must not be neglected. It is generally held that recovery occurs in from two to four weeks.

The following deductions were made by Högyes:

1. That, following varicella, the same secondary changes may occur in the kidneys as after other acute infectious diseases.

2. That notwithstanding that varicella is the mildest of the exanthemata, fatal nephritis may occur just as after measles, small-pox, or scarlet fever.

3. The symptoms of nephritis may develop soon after varicella, or later, the time being generally from five to twenty-one days. During the existence of the eruption nephritis has not been noticed as a complication.

Abscess of Cerebellum. (*Archives of Pediatrics*, April, 1893, 365; *Edinburgh Medical Journal*, November, 1892, p. 475.) By James Carmichael.

The brain was shown before the Medico-Chirurgical Society of Edinburgh. The child was two and a half years old, and the abscess was in the left lateral lobe of the cerebellum, and was one and a half by one and a quarter inches large. There was no other morbid appearance except a very limited meningitis at the margin of the internal auditory meatus. The child had otorrhœa for eighteen months before death. There were no special localizing symptoms, which is the rule whether the lesion is in the temporo-sphenoidal region or in the cerebellar lobes. In this case careful exploration of the temporo-sphenoidal region was made, with negative results. After this exploration, on account of the state of the child, it was not considered desirable to trephine in any other situation, and therefore the cerebellum was not explored.

Examinations of the Bacteria contained in Milk which has undergone Sterilizing Processes. (*Archives of Pediatrics*, April, 1893, 361; *Jahr. f. Kinderh.*, 1892, xxxiv. 107.) By Sior.

The author presents tabular views of the experiments. The earliest possible sterilization of milk is recommended, and this should be done in milk-sterilizing depots. Attention is called to the need of cleanliness in stables, in milking, and in the handling of milk.

Urine in Whooping-Cough. (*Revue Mensuelle des Maladies de l'Enfance*, June, 1893, p. 288; *Vratch*, 1892, No. 47, p. 1199.) By Blumenthal and Hippus.

The authors stated at the Pediatric Society of Moscow that from the beginning to the height of the disease the urine is pale yellow, very acid, with very high specific gravity, and free uric acid. These characteristics disappear under the influence of quinine, antipyrine, and of febrile complications. These characteristics are so constant that the authors believe that they may enable them to make an earlier diagnosis.

Etiology of Whooping-Cough. (*Revue Mensuelles des Maladies de l'Enfance*, June, 1893, p. 285; *Lyon Médical*, 1892, No. 50, p. 517.) By V. Gaultier.

The author utilized the opportunity given him by an epidemic in his own family by making preparations, cultivations, and inoculations. He concludes,—

1. That whooping-cough is due to a microbe.

2. That the microbe is easily cultivated, and that it exists in abundance in the most consistent parts of the sputa, and is to be recognized by its rounded form.

3. That it is transmissible to certain animals,—rabbits, crows, dogs, and colts,—and that dogs and colts take it most easily and lend themselves best to its clinical study.

The gross pathology of these experiments seems to have been catarrh of the air-passages and congestion of the lung. In the abstract given by the *Revue Mensuelle* nothing is said as to the clinical symptoms presented by these animals.

Cicatrices of Strumous Origin in the Cervical Region. (*Archives of Pediatrics*, February, 1893, p. 100; from *Mal. de l'Enfance*, 1892, x. 290.) By Calot.

The whole altered skin was removed by a bistoury from a space of four centimetres by three and a half, the thickness of the scar being from one to two millimetres. The lips of the wound were freed, and with very fine needles a careful suture without drainage was made. The fine line of the resulting cicatrix was scarcely visible. The same operation was done in ten or more cases with like success. Twice the cicatrices, although linear, became lightly pigmented.

Frequency of Tuberculosis among Nurslings. (*Revue Mensuelle des Maladies de l'Enfance*, April, 1893, p. 284; *Vratch*, 1892, No. 18, p. 452.) By Enguelne.

The examinations of the author were bacteriological and pathological, as well as clinical. They were made with great thoroughness, but were confined to the institution children of the Hospice des Enfants Assistés at St. Petersburg. These researches gave the following results:

1. Tubercle bacilli were found in fourteen out of one hundred and twenty children,—*i.e.*, 11.7 per cent; bacilli existed in the lungs in ninety-three per cent., in the bronchial ganglia in ninety-three per cent., and in the mesenteric ganglia in eighty-six per cent.

2. Thoracic tuberculosis was found alone in seven per cent. of the cases, abdominal tuberculosis alone in seven per cent., and both together in ninety-three per cent.

3. The age of children dying of tuberculosis varied from two months and four days to seven months and seven days.

The author also tried to find the relation of tuberculosis to all the autopsies of ten years, as shown by the gross pathology, with the following result:

1. The mortality of tuberculosis varied from 0.82 per cent. to 5.18 per cent. of the whole number of autopsies, there being a mean of 2.62 per cent. for the ten years.

3. Tuberculosis is most often first recognized between two and three months of age.

4. The increase and diminution of the number of cases of pulmonary inflammation, of intestinal catarrh, and of other affections bears a direct relation to the number of autopsies.

SURGERY.

IN CHARGE OF B. FARQUHAR CURTIS, M.D.,
Surgeon to St. Luke's Hospital and to the New York Cancer Hospital.

Ten Cases of Ankylosis of the Elbow-Joint after Treatment of Fracture of the Lower End of the Humerus with the Forearm in an Extended Position. (*Annals of Surgery*, xviii., August, 1893, p. 218.) By Jarvis S. Wight, M.D.

Wight relates the histories of ten cases of fracture just above the elbow which fell into his hands after treatment by others, the joint having been kept in full extension, or midway between that position and flexion to a right angle, and in which ankylosis had supervened. He resected the joint in five with good results, and treated four others by *brisement forcé* or infraction, getting a stiff flexed elbow, the tenth case refusing treatment. He very rightly says that these cases should warn us against any general teaching that the arm is to be kept straight in treating these fractures, for, in the hands of any except the most experienced, ankylosis is so apt to result, with a useless limb; whereas, if the joint were stiff and flexed, it would not so greatly impair the usefulness of the extremity.

A New Method of Direct Fixation of the Fragments in Compound and Ununited Fractures. (*Annals of Surgery*, xviii., August, 1893, p. 125.) By Nicholas Senn, M.D.

Senn suggests the use of a broad ring of perforated bone to hold the ends of the fragments of a broken bone together, the ends being shaped so that they will slip into the ring and overlap. After closing and dressing the wound, further support is given by external splints. He has tried it upon three cases, and, although slight infection took place in all, so that the ring was not absorbed and was subsequently removed, the apposition was so firm that he unhesitatingly recommends its use. He claims that bone suture or nailing does not furnish sufficient support, while the solid intra-osseous plug

or splint of ivory or bone advised by Heine, Langenbeck, and Bircher interferes with the ideal production of the intermediate callus, while its absorption makes too great demands upon the capacity of the tissues. The bone rings are made of sections of the long bones of animals, the interior being filed away and the ring then perforated with holes. They should be kept on hand in various sizes and shapes (triangular for the tibia). Later experiments may show the necessity for partially decalcifying them before use to aid in absorption. Perhaps Senn's own cases have already demonstrated this, for it certainly makes greater demands upon the asepsis of an operation to implant an undecalcified than a decalcified bone in the tissues.

The Technique of Gastro-Enterostomy. (*Du manuel opératoire de la gastro-enterostomie; Archives cliniques de Bordeaux*, April, 1893, p. 173.) By M. Francis Villar.

In a long and quite complete paper on gastro-enterostomy, after detailing a case of his own, Villar describes a modification of the ordinary methods of suturing the borders of the fistula, which promises to be useful. The posterior line of serous sutures is inserted before the stomach and intestine are incised, then the opening is made and the mucous membrane edges sewed together, which is not at all a difficult matter, as they are already held in apposition by the outer line of stitches. But, as all operators know, the suture of the mucous membrane edges on the proximal side of the orifice is very difficult and uncertain, for, owing to the eversion of the mucous membrane, it is practically impossible to secure apposition of the cut edges, and mucous surface is pretty certain to be in contact with mucous surface at more than one point when the suture is completed. Villar suggests the abrasion or cutting away of this everted mucous membrane and then introducing sutures in such a way as to bring in apposition the broad freshened surfaces thus obtained, similarly to the method recommended by Chaput for intestinal suture. A second row of sero-muscular sutures is, of course, applied outside of this mucous, or rather muscular, suture.

Case of Cancer of the Hepatic Flexure of the Colon, producing Intestinal Obstruction; Temporary Relief by an Artificial Anus; Later Re-establishment of the Continuity of the Bowel by Ileo-Colostomy by Means of Murphy's Button. (*Annals of Surgery*, xvii., June, 1893, p. 652.) By William W. Keen, M.D.

The very full title gives the essential points in Keen's communication, except the very important one that great contraction took place in the opening made by the button, reducing it in the forty-seven days before death from one inch to one-half inch in diameter. This untoward result, which has been predicted by nearly every surgeon familiar with intestinal work in discussing the usefulness of that ingenious contrivance, has convinced Keen "that the button should be abandoned for intestinal or gastro-intestinal anastomosis, although it will find a most useful field in cholecyst-

enterostomy." It appears to the reviewer that here also there is danger that it might fall back into the gall-bladder instead of into the intestine, and, being kept there by contraction of the orifice, work mischief. The serious danger, moreover, that intestinal obstruction might be produced by this large foreign body in passing through the bowel also remains. The method is ingenious, but not practical.

Separation of the Lower Femoral Epiphysis. (*Annals of Surgery*, xviii., July, 1893, p. 1.) By A. W. Mayo Robson, F.R.C.S.

Robson dwells on the necessity of appreciating the unusual, but not very rare, form of injury to the knee in which the lower epiphysis of the femur is broken off. Some sixty cases are on record. The injury may be a very severe one, necessitating amputation because of injury to the vessels by the projection of the upper fragment in the popliteal space. Robson has seen three cases of the injury, and succeeded in reducing the deformity and securing a good limb in all. He suggests division of the tendo Achillis to aid in reduction, but did not need to resort to this expedient himself.

Advancement of a Portion of the Superior Maxillary Bone in Cases of Hare-Lip with Anterior Cleft of the Hard Palate for Correcting the Deformity of the Ala Nasi. (*Medical Record*, June 24, 1893, p. 769.) By John A. Wyeth, M.D.

Wyeth found that in certain cases of hare-lip and cleft palate the ala of the nose on the affected side, resting on the undeveloped bone, could not be made to look well after the operation, no matter how throughly it had been dissected up from the bone, and hit upon the idea of detaching the underlying bone, teeth and all, and advancing it, thus closing the anterior part of the cleft palate and restoring the symmetry of the nose. The bone is cut between two of the teeth with strong bone-cutting pliers and wired in its new position, the surfaces of the cleft having been freshened. The hare-lip is not operated upon until at least eight weeks later.

Ligature of the External Iliac Artery by Cœliotomy for Aneurism.—Cases are reported in the *Lancet* (1893, ii., pp. 31 and 196) from the practices of Mr. Brown and Mr. Makins in which the peritoneum was opened and the external iliac artery ligated by that route for aneurisms of the femoral and external iliac arteries. Mr. Makins's case had the external iliac ligated in the same way on the left side seven months before. The operation was simple and the result excellent, the circulation being almost immediately restored, perhaps, as Mr. Makins suggests, from the already existing dilatation of the collateral circulation upon the other side. Mr. Brown was not so fortunate. The aneurism extended so high up that he thought it better to make his incision in the median line, and the stoutness of the patient rendered a cut six inches in length a necessity. The artery could even then only be brought in sight by elevating the pelvis and

emptying it of the intestines, and some veins crossing the vessel were very much in the way. The ligature was at last safely placed. Unfortunately, gangrene ensued, and although an amputation was made at the lower third of the thigh, the patient died about six weeks after the operation for ligature.

The Treatment of Tuberculous Disease of Joints by the Induction of Local Œdema. (*Lancet*, 1893, June 24.) By W. H. Brown, F.R.C.S.I.

Brown has tried in nine cases the method of treatment by applying an elastic ligature above the focus of disease, recommended by Page and in use at Kiel, for tuberculous arthritis, two each being situated in the knee, ankle, elbow, and wrist, and one in the thumb, most of the patients being children with the disease an early stage. The results were very unsatisfactory, some of the cases not improving and some growing worse, so that resections and one amputation were necessary.

The Relief of Intra-Cranial Pressure by the Withdrawal of Cerebro-Spinal Fluid from the Basal Subarachnoid Cavity. (*Lancet*, 1893, ii. 21.) By Alfred Parkin, M.S., M.D.

Parkin reviews the various suggestions for drainage of the cranial cavities to relieve pressure, and advocates a new method which he has tried in one case, it is true, without great success, as his patient, a comatose child with tuberculous meningitis, died sixteen hours after the operation, yet he thought the temporary relief of symptoms was so great as to warrant its further trial. He operated by removing a button of bone with the trephine below the superior curved line of the occipital bone, on the right side of the middle line, and enlarging the opening downward by rongeurs. He then opened the dura and passed a probe inward along the lower surface of the cerebellum and obtained the discharge of two or three ounces of serum. The child had Cheyne-Stokes respiration, with a pulse of 150, but with the relief of pressure the respirations became regular and the pulse improved.

ORTHOPÆDICS.

IN CHARGE OF REGINALD H. SAYRE, M.D.,
Assistant to the Chair of Orthopædic Surgery, Bellevue Hospital Medical College, New York.

Forcible Correction of the Spine in Lateral Curvature. (*Boston Medical and Surgical Journal*, May 11, 1893.) By E. H. Bradford, M.D., and E. G. Brackett, M.D., of Boston.

This excellent article gives the results of a number of cases in which the authors have employed a device for forcibly correcting the deformity of lateral curvature, and have also used it as a means of holding the body in a corrected position during the application of the plaster-of-Paris jacket.

The apparatus is a modification of Hoffa's and Schede's, and consists of a steel frame eight feet high and three feet wide, in which the patient stands, with the hips securely held by clamps, while vertical traction is made on the head and arms. By means of screws, which run from a couple of rings which encircle the patient's body, at some distance from it, pads are pushed against the various projections of the body, while the shoulders are kept in a fixed position by a set of clamps. The spine being thus stretched longitudinally, and twisted around its long axis as straight as possible, a plaster-of-Paris jacket is put on, the gaps left at the points where the pressure-pads go being filled up later on. The authors approve of leaving the jacket on day and night, as the cases suitable for treatment by this method require constant pressure to be exerted on the thorax to restore its shape. The method seems very good in theory, and the results secured, so far as reported in the paper, are very satisfactory.

Osteoclasis.—At the meeting of the Medical and Surgical Association of the County and City of Cork, Ireland, Dr. Nicholas Grattan presented the notes of a series of cases he had operated on up to that time (*Provincial Medical Journal*, July 1, 1893) by means of his special osteoclast. They were—

Knock-knee (legs fractured for), 6, (femurs fractured)	71 = 77
Club-feet (legs fractured for and rotated), 21, tarsi (crushed)	10 = 31
Curved legs	43
Others	2
Total	153

He exhibited to the society the latest form of this osteoclast, which he has improved in many ways. He stated he had replaced the ratchet attached to the former patterns of the instrument by a small thumb-screw; by this means he had been able to regulate the distance of the opposing bars with great nicety. He had also been able to prevent the central pressure-bar from rotating by means of a strong guide-rod attached to it, which worked parallel to the screw, through the pivot which connects the bars together. The screw he now uses is much more powerful than before; it is one inch in diameter, and contains five square threads to the inch. The levers attached to this screw are eighteen inches long. He stated that he believed this instrument, as now arranged, to be a perfect one of its kind, and that he had been able to eliminate the defect of the former ones; with this instrument he is able to operate, in most cases, with but little assistance. Since last reporting to the society, one of the patients had died of tubercular meningitis, and he had obtained the femur. The patient, a little girl aged four years, had osteoclasis performed on both femora for knock-knee in March, 1892. She had recovered perfectly, and was walking about at the sea-side. Tubercular meningitis suddenly manifested itself, to which she succumbed on June 1, 1892.

Post-mortem Appearances.—The bone had firmly united. No trace of the fracture, the surface of the bone being perfectly smooth in continuity. The periosteum also covering the bone was smooth and intact; no traces of callus whatever. The bones lay in perfect position, the knee-joint natural, its movements perfect. The leg and thigh being in continuous line, no injury to the bones, muscles, or periosteum could be detected, nor signs of any subsequent inflammation.

He had also used his instrument (post mortem) on a full-grown, vigorous man, breaking the femora with the greatest celerity and ease. The bones were examined by Surgeon-Major Woods, with the resulting proof of the bones having been broken by a clean transverse fracture at the point of selection, and no injury to the periosteum occurring. He exhibited the specimens to the members.

Electrolysis in the Treatment of Fibrous Ankylosis. (*Annals of Surgery*, August, 1893.) By Fred W. Gwyer, M.D., of New York.

The author reports six cases of fibrous ankylosis following injuries of various kinds, which he treated by electrolysis with most satisfactory results, several of the cases having had other treatment previously without benefit. He uses a large flat sponge covering a sheet of copper for the negative electrode and the ordinary sponge-handled electrode for the other pole, both being wet with a rather strong solution of ammonium chloride. He often partly immerses the part to be treated in the dish containing the salt solution and the negative pole, which is of course held in close contact with the skin, the small electrode being held on the opposite side of the joint. He has used from ten to seventy-five milliampères, giving as much as the patient can stand, the séances being from ten to thirty minutes, and the applications at intervals of one to five days.

Very marked increase in the range of motion was to be noticed after the early applications, and less and less increase later on, but still always a perceptible difference was to be observed. At times it was noticed that adhesions, which resisted motion previous to a séance, snapped readily when very slight force was used after the application of the electricity. Beyond this very slight force no passive motion was used in these cases. The amount of motion, after applying the electricity, was in some cases double that which it had been before.

OBSTETRICS AND GYNÆCOLOGY.

IN CHARGE OF JOHN M. KEATING, M.D., LL.D.,
Colorado Springs, Colorado; Fellow of College of Physicians of Philadelphia; Gynæcologist (Emeritus) to St. Agnes's Hospital, Philadelphia; formerly Visiting Obstetrician to the Philadelphia Hospital (Blockley); Editor "Cyclopædia of the Diseases of Children," etc.

The Development of the Intrapelvic Treatment of the Stump after Hysterectomy for Fibroid Tumors. (*American Journal of Obstetrics*, etc., June, 1893.) By Dr. J. Riddle Gough.—In this paper the author dwells upon the value of the operation described by him, which has the following features: (1) The large, distinct peritoneal flaps with which the stump and all traumatic tissue involved in the operation are buried beneath the peritoneal cavity; (2) the transfixion of the stump inside these flaps; and (3) the utilizing, when necessary, of the cervix as a drainage-tube. He tells us that in 1891, Zweifel, of Leipzig, reported a series of fifty-one cases with two deaths, by a method that corresponds in all essential particulars with Dr. Goffe's method, thus giving a mortality of only four per cent. This is the best record made by any operator with any method, and puts the operation on a par with the success of ovariotomy. Competition for supremacy lies between this method of leaving the pedicle and total extirpation. The disadvantage of total extirpation is the technical difficulty of removing the cervix. By leaving the cervix as a stump the traumatic tissue is disposed of with all the nicety of a plastic operation, the parts are restored to their normal relations in the pelvis, and no raw surface is left to contract adhesions or produce obstruction. Statistics are strongly in favor of retention of the cervix. Fifty-one operations with only two deaths, a mortality of four per cent., and the last twenty-seven an unbroken series of successful cases, is the standard that is set for the total-extirpationists.

Contagiousness of Puerperal Fever. (*Annals of Gynæcology and Pediatry*, June, 1893.)—From the classical article of Oliver Wendell Holmes, which was published in 1843 and which has just been republished, we take his eight conclusions, which will be most interesting to the younger brothers of the profession who may believe that antiseptic midwifery is something very new. "Honor to him to whom honor is due." 1. A physician holding himself in readiness to attend cases of midwifery should never take any active part in the post-mortem examination of cases of puerperal fever. 2. If a physician is present at such autopsies, he should use thorough ablution, change every article of dress, and allow twenty-four hours or more to elapse before attending to any case of midwifery. It may be well to extend the same caution to cases of simple peritonitis. 3. Similar precautions should be taken after the autopsy or surgical treatment of erysipelas, if the physician is obliged to unite such offices with his obstetrical duties, which is in the highest degree inexpedient. 4. On the occurrence of

a single case of puerperal fever in his practice, the physician is bound to consider the next female he attends in labor, unless some weeks at least have elapsed, as in danger of being infected by him, and it is his duty to take every precaution to diminish her risk of disease and death. 5. If within a short period two cases of puerperal fever happen close to each other in the practice of the same physician, the disease not existing or prevailing in the neighborhood, he would do wisely to relinquish his obstetrical practice for at least one month, and endeavor to free himself by every available means from any noxious influence he may carry about with him. 6. The occurrence of three or more closely connected cases, in the practice of one individual, no others existing in the neighborhood, and no other sufficient cause being alleged for the coincidence, is *prima facie* evidence that he is the vehicle of contagion. 7. It is the duty of the physician to take every precaution that the disease shall not be introduced by nurses or other assistants, by making proper inquiries concerning them, and giving timely warning of every suspected source of danger. 8. Whatever indulgence may be granted to those who have heretofore been the ignorant causes of so much misery, the time has come when the existence of a *private pestilence* in the sphere of a single physician should be looked upon not as a misfortune, but a crime; and in the knowledge of such occurrences, the duties of the practitioner to his profession should give way to his paramount obligations to society.

OPHTHALMOLOGY AND OTOLOGY.

IN CHARGE OF J. E. HARPER, A.M., M.D.,
Chicago, Illinois.

Toxic Amblyopia from Iodoform.—In the April number of the *Ophthalmic Review* Mr. Priestley Smith relates a case which had come under his observation in which there seems no reason to doubt that the amblyopia which was present was a result of iodoform. So far as he has been able to find, the case recorded by Hirschberg in 1882 and that observed by Dr. E. Hutchinson in 1886 are the only ones on record in which amblyopia has been attributed to iodoform, and some doubt seems to have been entertained as to whether these were conclusive or not. The case observed by Mr. Priestley Smith was that of a man aged thirty-one, who was admitted into the Queen's Hospital, Birmingham, suffering from tuberculous disease. Iodoform was administered in pills at first in two-grain doses three times a day, later in doses of four grains eight times daily. In forty-one days he took altogether about one thousand grains. At the end of that time the drug was discontinued on account of toxic symptoms, especially amblyopia. The onset of this was associated with headache, giddiness, and faintness, and there was also emotional depression. Diarrhœa was present

and the urine became alkaline, whilst the taste and smell of iodoform were constantly present to the patient. On the third day after the iodoform was discontinued there were great drowsiness and slight ptosis on the left side. These disappeared next day, and there were numbness and tingling in the legs and the knee-jerks were increased. Four days after the drug was stopped Mr. Priestley Smith found the refraction normal and the media clear. There was slight haziness of the disk margin, but no distinct papillitis. Vision was greatly impaired, and there was a well-marked central scotoma, not for colors only, in each eye. Three days later the haziness of the disks seemed rather more marked, but the patient thought his vision was already improving. Vision gradually improved until, about three months after the onset of the amblyopia, it had risen to $\frac{6}{8}$ in each eye and no scotomata could be found. Although the patient had smoked about two ounces of tobacco a week before his admission, he had indulged only once —viz., on Christmas-day—during his residence in the hospital. On that occasion he smoked about a quarter of an ounce. It was consequently about seven weeks after his discontinuance of regular smoking and three weeks after his solitary indulgence at Christmas that his symptoms began. During his recovery he resumed his smoking without any evident impairment of his progress, so that it seems as if tobacco may be almost certainly excluded as a cause of the symptoms, and that these must be referred to the iodoform.

Radical Cure of Stricture of the Nasal Duct.—In the *Canadian Practitioner*, May, 1893, Dr. S. Theobald writes of the treatment of the nasal duct by the use of large probes. He says, "I have watched this treatment for years, and have seen no relapses in patients who have been discharged as cured. I believe nearly all the relapses are in patients who have, for one reason or another, ceased before treatment was completed. I invariably endeavor to avoid beginning with the small probe, for it is so easy to produce with them a false passage. I prefer to begin with a No. 5 or a No. 6. There are three kinds of tissues in the duct,—mucous membrane, periosteum, and bone. If the closure be due to simple hypertrophy of the membrane, it will probably be relieved by simple collyria. I have never met with blenorrhœa of the lachrymal sac caused by severe ophthalmia. It is almost invariably due to extension of catarrh from the nose. My method of operating is first to anæsthetize with cocaine and then pass a small probe, No. 2 usually, through the puncta and canaliculus, to look for, and, finding it, to overcome, any stricture at the juncture of the canal and sac. This facilitates the entrance of the probe-pointed canaliculus knife into the sac. Having slit up the canal, I then pass a No. 5 or No. 6 probe, or a smaller one if I fail with these. I anoint the probes with vaseline containing ten per cent. of cocaine. Having surely entered the sac, we need not hesitate to use force in passing the stricture. I have never seen any serious consequences. Rarely I have had while using the small probes an ecchymosis of the lid, and once or twice slight inflammatory reaction.

I do not think it advisable to probe daily unless compelled to do so for want of time. It may excite too much inflammation. Every other day is my custom. I increase by one number each time, skipping a number if very freely passed, or dropping back one if too tight. In two-thirds of all cases, including children, I have used a No. 16. Having reached the largest I intend to use, I then increase the intervals. The only objection I know to the treatment is that the duct may remain too pervious and air passes freely when the nose is blown; but such inconvenience is, I think, very small."

Sympathetic Iritis.—On this subject Dr. Webster (*Archives of Pediatrics*, May, 1893) expresses the following opinion:

"Every case of sympathetic ophthalmia is of interest to the profession and should be published if anything like an accurate history has been kept. Too often, in spite of everything that can be done by the most skilled and experienced physician, these patients become totally blind. All cases of injury of the ciliary region should be carefully watched, and at the first intimation of sympathetic disease in the fellow eye the offending eye should, if sightless, be enucleated. Some of our highest authorities are of the opinion that when sympathetic inflammation is once established it is too late for enucleation to do any good, and so they advise against it. But my own experience and observation do not corroborate this theory. I have a patient, at this writing, in the Manhattan Eye and Ear Hospital, who came to me one week ago, with one eye atrophied, and containing a calcified lens, and a bony plate in the choroid, with sympathetic iritis in the fellow-eye, which had already reduced the vision of that eye to $\frac{10}{200}$. I enucleated the offending eye without delay, and to-day the vision of the inflamed eye is $\frac{20}{60}+$. I would always enucleate the blind, offending eye so long as any vision remains to be saved in the other eye. Children who are liable to sympathetic ophthalmia need more careful watching than adults. They are too apt not to notice a gradual impairment of their vision, and the disease often makes a good deal of headway before it is discovered by their parents. If they are old enough to know how to read, their parents discover their threatened blindness only when they can no longer see well enough to read. If not old enough to have learned to read, the first intimation their parents get of the true condition of things is when they see them running into and against things that should be seen and avoided. Therefore, when a child has a blind eye, and especially if blind from a traumatism, the other eye should be carefully inspected at regular intervals, so that any cloudiness of the cornea or any slight redness of the eyeball may be noted at the earliest possible moment."

Abuse of Atropine.—At a meeting of the California State Medical Society (*Southern California Practitioner*, May, 1893) Dr. K. Pische, in a paper with this head, said that the medical student is so impressed with the

excellencies of atropine that, when he enters upon practice, he is apt to use it far too often. Now that cocaine and homatropine are available, it is no longer necessary to impair a man's vision for nearly a week when we can obtain the same results with drugs the effects of which disappear overnight. The use of atropine in acute inflammation of the eyeball is altogether too frequent. The specialist sees too frequently cases of absolute glaucoma, that could have been saved by the timely use of eserine. To these cases atropine is poison. In corneal troubles atropine should be instilled only when there is danger of the inflammation affecting the iris. In keratitis and interstitial keratitis, and even in ulceration, atropine is often harmful, and the speaker has abandoned its use more and more for eserine. Slight injuries to the cornea do not require atropine, with its prolonged and disabling effects. Even in iritis atropine should be used very moderately, especially when it has no effect on the pupil. In conclusion, the speaker said that whenever one was in doubt whether or not to instil atropine, it was best to give the patient the benefit of the doubt.

The Differential Diagnoses of Vascular and Muscular Tinnitus Aurium.—Dr. Thomas F. Rumbold read a paper with this title before the California State Medical Society (*Southern California Practitioner*, May, 1893), in which he said, "If the ear-sounds are carefully analyzed they will be observed to be of two distinct varieties. They differ in the character of the sounds, in the location of their origin, in their etiology, in their mechanism, and in their treatment. Vascular tinnitus aurium is caused by the flow of blood through the irregular calibred blood-vessels of the internal ear, producing vibrations in the passage. Muscular tinnitus aurium is produced by the action of diseased muscles of the middle ear producing vibrations by alternate contractions and relaxation. It is well known that some persons who are partially deaf, and suffer from excessive noises in their ears, will hear conversation on a moving train better than in a quiet room. This is positive proof that these subjects are affected with muscular tinnitus aurium. The other class of sufferers find their hearing impaired on the moving train, showing that they are suffering from vascular tinnitus. An ear-sound that is formed by alternate contractions and relaxations of the muscles of the middle ear will cease upon the application of an extrinsic sound, and this inhibitory influence will often last for a long period. Extrinsic sounds cannot control the vascular tinnitus." He had found a small stream of air directed upon the covered bell of a Cammann's stethoscope the most successful means of applying a sound to the ear. The covering of the bell is made by a thin sheet of rubber, and the stream is produced by a pair of rubber bulbs. It is of the utmost importance to differentiate between the two kinds of tinniti, for treatment that would be of great value to a patient suffering from the muscular variety would be decidedly injurious, if not disastrous, to one suffering from the vascular variety.

Vibratory Motion in Aural Disease.—In an article on this subject (*Memphis Medical Journal*, June, 1893) Dr. Henry F. Garey gives the following description of the instrument, method of application, and results of its use in his practice:

"I use the instrument called the vibrometer to apply this system of massage. It is shaped like a banjo. Behind the diaphragm, which is made of wood instead of sheepskin, is an air-tight compartment. Leading from this air-tight compartment are rubber tubes which communicate with the external auditory canal, so that any vibratory motion made by the diaphragm is reproduced on the membrana tympani through the medium of the enclosed air. Over the diaphragm is placed the machinery for setting it into vibratory motion. This consists in what is called a yoke, containing a shaft, on which is a friction-wheel and cams. The friction-wheel sets in vibratory motion wire-wrapped strings, which are supported on a bridge resting on the diaphragm. These strings can be adjusted to vibrate from one hundred to three thousand times to the second. There is an attachment fastened to the centre of the diaphragm which the cam on the shaft, while revolving when adjusted, hits about forty times to the second. The effect is to lift the diaphragm, which immediately flies back by its own elasticity, causing a rarefaction and condensation of air in the external auditory canal with scientific precision. Catarrhal deafness, caused by proliferative inflammation when the Eustachian tubes are patulous, can be benefited only gradually, and after some months. But it is in these cases of deafness, when the hypertrophic variety of inflammation of the mucous membrane is present, with a great deal of tinnitus, that this method of massage is most effective. In these cases an immediate response to the treatment can be expected. The conclusions gained from experience with this new system of massage in aural diseases are,—

"First. That it is a great scientific advance on all previous methods.

"Second. That it is capable of greater perfection, with correspondingly good results.

"Third. It makes possible more or less benefit in cases of deafness heretofore considered hopeless.

"Fourth. It has opened up the field for the treatment of oral diseases to such an extent that the number of patients relieved of deafness will be greatly increased."

What Benefit can Ear Patients derive from Nasal Treatment?—In the *Journal of the American Medical Association*, June 3, 1893, in an article on this subject, Dr. H. Gradle formulates his observations as follows:

1. Acute pharyngeal inflammations cause either suppuration or catarrh with serous effusion into the tympanic cavity.

2. Chronic naso-pharyngeal anomalies lead to the proliferating or adhesive form of middle-ear disease, the so-called dry catarrh of most authors.

3. Whenever an acute catarrh has been started in the middle ear by an acute naso-pharyngeal process in a patient presenting persistent anomalies in the nose or pharynx, the tympanic disease will follow a protracted chronic course. Moreover, it is in patients with persistent lesions in the nose or pharynx that acute disease of this space is most apt to lead to middle-ear complications.

He arrives at the following conclusions:

1. Acute suppurative inflammation of the middle ear, if not treated, has a tendency to become chronic, the tendency increasing with the age of the patient.

2. Chronic suppuration of the middle ear rarely heals without ear treatment. Neither acute nor chronic purulent otitis is influenced by nasal treatment, but the liability to relapses after their cure is decidedly lessened by the removal of naso-pharyngeal anomalies.

3. Acute catarrh of the middle ear will generally terminate in complete recovery under aural treatment, and sometimes even without it, provided there are no persistent nasal or pharyngeal lesions. But when these are present the disease is more likely to become chronic in spite of aural treatment, and in many instances can either not be cured or, if improved, will speedily relapse unless the normal state of the nose and throat is restored.

4. Proliferating or adhesive disease of the middle ear is the consequence of retro-nasal catarrh, and its course is determined by the course of the disorder causing it. Aural treatment alone is practically useless in this form of trouble, while nasal treatment, if successful as far as the catarrh is concerned, will also arrest the ear-disease. The restitution of hearing, however, depends on the length of time the disease has lasted, and is often aided by ear treatment after the cure of the retro-nasal catarrh.

DISEASES OF THE LARYNX, NOSE, AND SURROUNDING STRUCTURES.

IN CHARGE OF J. PAYSON CLARK, M.D.,

Physician for Diseases of the Throat, Massachusetts General Hospital; Physician to the Throat Department, Boston Dispensary.

Anæsthetics for Operations on the Nose and Throat. (*Medical Press and Circular*, August 9, 1893.)—Lennox Browne says that an anæsthetic so dangerous as chloroform should not be used in operations in the nose and throat. As a substitute he recommends nitrous oxide gas, with which he has had an extended experience. The rapidity of its action, almost constant absence of unpleasant after-effects, rapid recovery of complete consciousness, in addition to its great safety, are strong arguments for its employment when the time required for the operation does not exceed forty-five to sixty seconds. Supplementing nitrous oxide gas with ether

vapor (in the same apparatus) during the last few respirations allows the period of narcosis to be extended to ninety or one hundred seconds without danger or unpleasant results. Hemorrhage is practically never increased by the use of this combination. Under nitrous oxide the patient can be treated upright, which is not safe under chloroform.

In performing tracheotomy the writer makes a hypodermic injection of cocaine in each side of the region where the trachea is to be opened. Five or ten minims of a ten-per-cent. solution are injected, and seven to ten minutes allowed to elapse before beginning the operation. Cocaine diminishes the hemorrhage, quiets the breathing, and steadies the larynx. In only one case has the writer seen any toxic action, and that was at once remedied when a full flow of air was admitted to the lungs through the open trachea.

The Use of Ozone in Atrophic Catarrh. (*New York Medical Journal*, August 19, 1893.)—Dr. Clarence C. Rice has used for two months with quite satisfactory results ozone in the treatment of atrophic catarrh. The instrument for manufacturing the ozone is described and its mode of use. The patient is instructed to take a deep inspiration and hold it while a current of ozone is passed through the nostrils. The patient must then blow the ozone from the nostrils before taking a breath. An accidental inhalation of ozone caused aphonic laryngitis in one patient for a day or two. The writer has used this remedy in eight cases of atrophic rhinitis of various grades. The immediate effect differed in degree according to the volume of gas employed and the sensitiveness of the patient's nostrils. There was a mild irritation of the nasal mucous membrane for several hours, and the secretion of mucus was increased for eight to eleven hours. Congestion of the nasal mucous membrane was exaggerated, and there was headache occasionally. The patients almost universally said the naso-pharyngeal mucous membrane was less dry and the secretions more easily gotten rid of. For twenty-four hours after treatment the patient had symptoms of a cold in the head; afterwards the nose felt unusually clear. The milder forms were quickly benefited and remained improved for several days. Whether permanent improvement can be obtained or not can only be told by longer trial. The deodorizing power of ozone in ozæna seemed as marked as that obtained with peroxide of hydrogen.

Benign Mycosis of the Throat. (*Revue de Laryngol., d'Otol.*, etc., July 1, 1893.)—This paper is based on twenty-nine cases (fourteen men and fifteen women) seen by the writer, Dr. J. Garel. The affection occurred most frequently between the tenth and twentieth years, in which period there were eleven cases in women and five in men. The oldest patient, a woman, was sixty-four. Only two were hospital patients, the others were in easy circumstances, the majority rich. This is probably because the symptoms are generally too insignificant for the laboring class to consult a

physician about them. A catarrhal condition favors the growth of the parasite. At first the parasite is superficial and easily removed; later it grows deeper into the follicles and the cure is more slow. Eighteen cases had affections which caused or favored inflammation of the throat. In three of the other cases there was dyspepsia, with a neuropathic state. Often the affection passes unperceived, or is only discovered by chance. The principal symptoms are tickling pricking, discomfort, slight pain in swallowing, cough, and even vomiting. The discomfort is nearly continuous. It can simulate a foreign body. Pain is rare; mentioned in only two of the cases. In three cases the breath was slightly fetid. The tonsil is the favorite seat, the base of the tongue next, then the postero-lateral walls of the pharynx, and sometimes the naso-pharyngeal vault. In one case there were a few points in the glosso-epiglottic fossæ. The affection may appear as small points, as fungoid tufts, or as patches or plaques. The tufts are more or less long and compact. The evolution of the affection is slow, and it is capable of disappearing after a long time spontaneously. The parasite of the affection is the leptothrix buccalis. The writer removed two affected tonsils in one case. These were examined microscopically, and the conclusion drawn that the leptothrix does not probably play the principal part in the affection. It appears more natural to admit first a special affection of the epithelium forming the covering of the crypts. When the mass of cast-off epithelium which fills the crypts in this affection come to the surface they form fine tufts in which the leptothrix finds a favorable soil. The parasite plants itself on the surface and penetrates only for a slight distance into the epidermic masses. The treatment may be long and tedious. After cocainization all the tufts are removed with forceps, and then the galvano-cautery point is introduced into all the follicles inaccessible to the forceps. One cannot, of course, clear all the affected follicles at one sitting, and often new growths will appear in follicles where they were thought to be destroyed.

Two Cases of Labial Chancre in Cigar-Makers. (*Medical News*, July 15, 1893.)—Dr. W. S. Gottheil reports the cases of two young women, cigar-makers, each having an initial lesion on the upper lip. One thought she had acquired the disease from the other. Both of these patients finished the tips of their cigars with saliva, and this practice was universal in the factory where they worked. Under such conditions the danger of infection from cigars would seem to be considerable.

Cough of Nasal Origin. (*Medical News*, June 24, 1893.)—Dr. Maximilian Herzog reports the case of a young woman in whom an adhesion between the left lower turbinate and the septum had caused for two or three years a most obstinate cough, with the sensation of a foreign body in the throat. Dividing the adhesion with the galvano-cautery knife caused a complete disappearance of these symptoms.

Hemorrhage from the Lingual Tonsil and Hæmoptysis. (*Revue de Laryngol., d'Otol.*, etc., June 1, 1893.)—In cases of hæmoptysis the possible source of the blood must be sought with the greatest care. Dr. Joal reports three cases in which the origin of the blood was the lingual tonsil. Case I., a young man, had a slight dry cough for several years, then began to grow thin and had an abundant mucous expectoration, later, bloody. Examinations of the lungs and sputa were negative. On looking into the throat a small tumor was seen at the base of the tongue in the median line. From a small ulcerated spot on this tumor the blood was seen to come. Cocainizing the spot and applying the galvano-cautery effectually stopped the bleeding and the patient recovered. Case II., a young woman, was suspected of having beginning phthisis. After a severe sore throat she began to have slight bloody expectorations following cough. The lingual tonsil was much enlarged, and numerous small points on it were found to be the source of the hemorrhage. Several applications of the galvano-cautery resulted in a cure. Case III. was quite similar to Case II. The use of the galvano-cautery was equally efficacious in this case. In none of these cases were there any varicose dilatations at the base of the tongue. The blood came from dilated capillaries.

Intubation in an Adult followed by a Fatal Œdema of the Larynx after Extraction of the Tube. (*Annals of Ophthalmology and Otology*, July, 1893.)—The following instructive case is reported by Dr. Max. Thorner: A man eighteen years old, who had had for eight years an affection which was considered asthma, came to the writer suffering from alarming dyspnœa. History was negative. The stenosis of the larynx was extreme. The smallest adult intubation-tube was introduced without difficulty. The patient breathed readily through it and complained of no pain. The writer removed the tube at the end of fifteen hours at the patient's request, intending to introduce it again in a few hours. The patient breathed easily. In fifteen minutes the physician was called to find the patient dead. After the pressure of the tube upon the infiltrated tissue had been suddenly relieved a subglottic œdema ensued, causing a fatal issue. The lesson is to keep such a patient under strict surveillance for some time after the extraction of the tube.

Clinical Notes on Chancre of the Tonsil, with an Analysis of Fifteen Cases. (*Medical Record*, May 27, 1893.) By L. D. Bulkley, M.D.

The numerous crypts of the tonsil seem to form a ready nidus in which the syphilitic poison may lodge. Chancre of the tonsil is not of very infrequent occurrence, but very commonly escapes recognition. The writer has more or less complete notes of over two thousand cases of syphilis. The larger number applied for treatment for skin lesions. Among these cases were one hundred and ten instances (over five per cent.) of extragenital chancre, and the writer thinks there were undoubtedly many more. Of these the largest

number were chancre of the lip (forty-nine cases), next, chancre of the tonsil (fifteen cases), and third, chancre of the finger (fourteen cases). The ages of patients with chancre of the tonsil ranged from eleven to forty-five. The right tonsil was alone affected in nine cases, the left in three, and both in three. In most cases there is a stinging pain in the tonsil with moderate pain in swallowing. The tonsil then swells pretty rapidly and the enlargement is great. The surface of the tonsil is always very red. The ulceration is generally not a striking feature, but can always be made out, having a well-defined margin. The base is generally covered with a slight white sticky secretion. On palpation with the finger the hardness of the tonsil is an important feature, especially when the case is seen early. There is commonly swelling of the nearest lymphatic glands. The occurrence of the eruption should establish the diagnosis. The cases generally ran a pretty severe course. Syphilis acquired extragenitally is apt to be very severe. Three cases in young men came from vile practices with their own sex. Several of the cases arose apparently from kissing, two or three from promiscuous drinking and smoking. Local treatment consisted of dusting with calomel or painting with black wash and gargling with a saturated solution of chlorate of potash. Constitutional treatment should be continued for at least two years.

Papilloma of the Larynx in Adults. (*Boston Medical and Surgical Journal*, May 25, 1893.)—Dr. J. P. Clark reports five cases of this affection. The chief interest in four of them lies in the fact that after the removal of the growth the patients were under observation for from three to fifteen years. In one case diphtheria, in another a severe cold, and later whooping-cough, were apparently the exciting causes of the growth. In the others no cause could be definitely ascertained. An unusual symptom which appeared in one case was frequent hemorrhage. The marked tendency to recurrence of these growths is well shown in four of these cases. In only two could the recurrence be attributed to incomplete removal in the first place. As these are benign growths and their tendency is sooner or later to disappear, no severe or harsh measures should be used in their removal. When they become of sufficient size to affect phonation or respiration they should be removed as thoroughly as possible, avoiding the use of powerful caustics or other dangerous agents.

Myxochondroma of the Larynx. (*Lancet*, June 3, 1893.)—Dr. J. W. Bond reports the case of a man aged forty-four who when first seen had abductor paresis of the right vocal cord. When seen a year and a half later on account of dyspnœa a growth was observed coming from below the glottis, covering the posterior part of the left cord. The right cord was still motionless. Six months later tracheotomy was required for dangerous dyspnœa. The growth had increased in size, and no air seemed to pass the tumor when the tracheotomy-tube was stopped. The patient finally con-

senting to operation, partial thyroidectomy was performed, all affected parts being removed, in fact all the larynx except the epiglottis, posterior and superior borders of the thyroid cartilage, and some of the mucous membrane of the brim. The patient made a good recovery, and after considerable trouble was fitted with an efficient artificial larynx. The tumor was almost entirely enchondromatous and very hard. It sprang from the posterior part of the crichoid cartilage. The occurrence of so large a laryngeal enchondroma is most rare.

DERMATOLOGY.

IN CHARGE OF W. A. HARDAWAY, A.M., M.D.,
Professor of Skin-Diseases in the Missouri Medical College, St. Louis.
ASSISTED BY
C. F. HERSMAN, A.M., M.D.,
St. Louis.

A Case of Tubercular Adenitis with General Alopecia and Pruritus.—Under this title Dunn (*Journal of the American Medical Association*, May 6, 1893), reports this case: the patient was a male, twenty-one years of age. His family history was good. Two years before he came under observation, while engaged in running a threshing-machine, he noticed enlargement of the cervical lymphatic ganglia, while he had a dry cough and was much troubled by general pruritus. When seen by the author, the ganglia of the cervical and axillary regions were very much enlarged, but showed no tendency to suppuration. The skin was remarkably anæmic and somewhat thickened and pigmented from the violent scratching. His body was almost devoid of hairs, which had fallen out since the pruritus began. There was extensive dulness over the mediastinum both in front and behind, which was thought to be due to enlargement of the bronchial glands. The patient improved for a time under the use of arsenic and cod-liver oil, but grew worse again, and died a year afterwards. At the post-mortem all the lymphatic ganglia were more or less enlarged. The mediastinum was packed with a mass of greatly enlarged ganglia. The pleural cavities were everywhere obliterated by adhesions, and the lungs were everywhere studded with tubercles the size of grains of wheat. In the abdominal cavity adhesions were present, and the peritoneum was strewn with tubercles, not miliary in size, but irregular, and the size of sago grains. No such tubercles were found in the liver, spleen, or kidneys. The omentum was a thick, hard, nodular mass. To the dermatologist the interesting features in this case are the alopecia and pruritus occurring with a well-marked glandular enlargement. It is a matter of regret that no examination was made to determine certainly the nature of the disease, for from the report of the post-mortem it might just as well have been a case of general carcinosis as one of tuber-

culosis. In most of the affections of the lymphatics there is more or less anæmia, and one of the comparatively frequent symptoms of anæmia is pruritus. We expect to find the hair as well as the other epithelial structures suffering in conditions in which the general nutrition is profoundly affected.

Chronic Miliaria Palmaris et Plantaris.—Crocker (*British Journal of Dermatology*, June, 1893) after calling attention to the fact that miliaria is usually an acute disease with a duration of only a few days, reports the following case which he thinks was one of chronic miliaria. The patient was a woman fifty-six years old, who stated that the rash had been present for five years, sometimes almost disappearing, but never entirely. The eruption was present only on the palms and soles. All the stages of the eruption seemed to exist at the same time, so that it was possible to study the whole course of the disease. The earliest stage was a pin-point-sized pustule seated at a sweat-pore, and surrounded by a semi-translucent reddish area, which was due to fluid under the epidermis. The pustule enlarged to the size of a millet-seed and then dried up into a horny plate about one-twelfth of an inch in diameter. When this crust was thrown off it left the new healthy skin surrounded by a white scaly border, the boundary of the cast-off epidermis.

Diffuse Erythema produced by the Internal Administration of Arsenic.—Nicholson (*British Journal of Dermatology*, June, 1893) reports a case of simple erythema following the administration of arsenic. The patient had been given three minims of liquid arsenicalis, three times a day, for two days. A generalized erythema then developed, which was most marked on the abdomen, chest, thighs, and upper arms. There was no rise in temperature, sore throat, enlargement of ganglia, or other signs of an acute exanthem. The rash promptly subsided on discontinuing the arsenic. This case is of interest from the fact that the eruptions which have been attributed to arsenic are usually of a chronic nature and have followed the long-continued use of the drug.

A Case of Desquamative Scarlatiniform Erythema with a Prolonged Course.—Under this title Toeroek (*Archiv für Dermatology und Syphilis*, 1893, Heft 4) describes this case: A man fifty years old, who had always enjoyed good health and whose family history was good, had cut himself while shaving, some fourteen days before he came under observation. No application was made to the cut. The patient was not taking any drug. Two days after the injury he noticed a feeling of tension in the skin of the face, and on the next day noticed that it was red. In the course of a week the disease had spread all over the body. At the time of the first examination it was found that the essential features of the disease were redness and scaling. Over the whole scalp was a fine, meal-like

scaling; the face, the neck, and the ears were of a bright red color and covered with fine scales, which were especially well marked in the folds of the skin. The skin of the chest and of the back was bright red, with faint darker-colored spots scattered irregularly over it; a fine scaling was to be seen here also. The extensor side of the arm was red and the scales were larger,—one-half centimetre in diameter. Upon the flexor side of the arm were large irregularly-shaped red spots disposed without regularity and covered with scales. Upon the thenar portion of the hand and under the wrist the skin was thickened and exfoliated in large lamellæ, leaving a red surface. In the interphalangeal folds, on the sides of the fingers and at the bend of the phalangeal joints, the skin was red and smooth, while about the borders one could see a fringe of epidermis. Only lanugo hairs were left on the trunk and extremities, and it could be seen that the epidermic exfoliation had involved their follicles. On the belly and sacral region there was no diffuse redness, only red spots which scaled. The skin of the penis was of normal color with some scaling at the scrotal junction. The scrotum was pale red with fine scales. The lower extremities were affected in a similar manner to the upper but to a lesser extent. About two months after the beginning of the disease the nails became rough and the hair began to fall out. The skin never showed any infiltration and the temperature was normal. The treatment consisted of baths and various ointments, of which those containing salicylic acid seem to have done most good. At the end of five months the patient had recovered.

The author then considers at length the various classifications of exfoliative dermatites, giving special attention to the divisions proposed by the French school, which, though very interesting, space forbids to reproduce here.

PATHOLOGY.

IN CHARGE OF ALLEN J. SMITH, A.M., M.D.,

Professor of Pathology in the Medical Department of the University of Texas, Galveston, Texas.

Ueber die Veränderung der Herzganglien bei acuten und subacuten Endocarditiden. (Changes in the Cardiac Ganglia in Acute and Subacute Endocarditis.)—Kusnezow, of Kronstadt, Russia (*Virchow's Archiv*, Bd. cxxxii. H. 1), thus concludes an article based upon the study of twenty-eight cases of endocardial inflammation:

1. In cases of acute endocarditis one meets with pathological changes in the ganglia in the form of inflammatory granulation formation, multiplication and swelling of the capsular endothelium, and albuminoid and fatty degeneration of the nerve-cells.

2. The changes in the ganglia in the basal portion of the ventricular septum in acute endocarditis depend for the greatest part upon extension of

the granulation process by continuity of structure from the valves to the adipose tissue surrounding the ganglia.

3. Vacuolization of the nerve-cells is not encountered in cases of acute endocarditis.

4. Pigmentary degeneration of the cardiac nerve-cells is not always a physiological phenomenon, and is not always dependent upon the age of the individual.

5. In cardiac hypertrophy pigmentation of these cells is a common process.

6. The changes in the cardiac muscle substance, as a rule, are not in close relation with the changes in the cardiac ganglia.

7. Alterations in the cardiac activity in life can only in rare instances be shown in a pathological and anatomical way to be dependent upon diseases of the cardiac ganglia.

Die Histogenese der Molluscumkörperchen. (The Histogenesis of the Molluscum Corpuscles.)—Kromayer, of Halle (*Virchow's Archiv*, Bd. cxxxii. H. 1), takes up the question as to the nature of the supposed parasitic bodies in molluscum contagiosum. By a special method of staining, detailed in the *Archiv für Mikroskop. Anatomie* (Bd. xxxix. S. 141), the author states that he is enabled to demonstrate the gradual change of the protoplasmic threads in the epithelial cells into a granular substance and its collection into the masses variously described as protozoa.

Parasitic Nature of Cancer.—Gibbes, of the University of Michigan (*American Journal of Medical Sciences*, July, 1893), decides that the supposedly parasitic bodies found in a small percentage of glandular carcinomata are really examples of endogenous cell formation, and that in the large majority of glandular cancers there can be found nothing which can be considered parasitic when hardened by any method which, when applied to normal tissue, will give a typical normal section. These conclusions are based upon the results obtained by staining cancer sections with a color reagent having a special effect upon protozoan bodies. The stain is made up as follows: Dissolve two cubic centimetres of aniline oil in ten cubic centimetres of rectified spirit, make up to one hundred cubic centimetres with distilled water and filter. This makes practically a saturated solution. With this aniline water make a two-per-cent. solution of rosanilin sulphate for stain No. 1, and a one-per-cent. solution of iodine green for solution No. 2. Sections containing protozoan bodies, as, for example, the liver of a rabbit containing coccidium oriforme, hardened in alcohol, are left for ten minutes in a watch-glass into which stain No. 1 has been filtered. They are then to be washed in water to remove the superfluous stain, then washed slightly in ordinary alcohol and placed in a watch-glass containing filtered stain No. 2. They had best be taken out from time to time and examined in distilled water, and when the original red has been changed to a dull

purple the staining will be completed. The sections are then washed in water to remove the excess of stain, then washed in alcohol until no more stain is carried off, cleared in oil of cloves and mounted in xylol balsam. The parasites will be stained a bright-red color, the capsule having a slightly dull-red hue. Shrunken and degenerated parasites fail to take the bright-red color. The nuclei of the tissue-cells will be stained green, as well as the leucocytes. The fibrous tissue and protoplasm of the liver-cells and epithelium of the bile-ducts are stained a purplish red. Sections of cancer hardened in the same manner as the liver containing coccidia failed to show any appearances which might be taken for parasites. When hardened in osmic acid, Müller's fluid, bichloride of mercury, and some other methods prescribed by different observers, however, large numbers of the so-called parasitic bodies could be found. Gibbes, therefore, regards the supposed protozoid bodies described in sections of carcinoma as the results of faulty hardening.

CLIMATOLOGY.

IN CHARGE OF GUY HINSDALE, M.D.,
Lecturer on Climatology in the University of Pennsylvania, Philadelphia.

Australia for the Consumptive. (*British Medical Journal*, November 19, 1892.)—"Of the advantages for consumptives of many Australian health-resorts there can be no question. The climate of the Australian continent is very variable in its different parts; that of Sydney is damp and depressing, and the heat in summer is well-nigh unbearable. Melbourne is subject to most violent and sudden changes of temperature; and Hobart also in a less degree. Some parts of the interior, especially along the Murray River, are well suited to a certain small class of consumptives; although the summer heat is great, the climate is fairly equable, and the dryness of the atmosphere is very advantageous to the phthisical. But this up-country life is only suited to the young and vigorous, with a good reserve of physical force, and not without some financial resource also, for lodgings are rough, food badly and hastily cooked, and house-rent very high. Still, a winter on the Murray will prove attractive and health-restoring to the well-to-do and fairly vigorous *poitrinaire*, but not to the advanced consumptive. Mount Lofty, in South Australia, and Mount Macedon, in Victoria, are also places of resort that can be recommended, where there are some chances of meeting with the comforts of civilization."

The Rainless Coast of South America.—Isaac N. Ford, in his recent work, "Tropical America," describes this remarkable zone. It extends inland from the Pacific to the Andes, in a strip from twenty to eighty miles wide, and two thousand miles in length. The trade-winds strike Northern

Brazil loaded with vapor, supplying the Plate and Amazon River systems with abundant rainfall. When these currents beat against the ramparts of the Andes the remaining moisture is wrung from them by the condensing power of low temperatures at extreme altitudes. Thus the air coming over the summit of the Andes has been squeezed dry, and as rain-storms from the west never blow inland no rain whatever falls. The coast of Peru, Bolivia, and Northern Chili is remarkably healthy. Phthisis, cholera, and yellow fever are exceedingly rare.

REVIEW OF ITALIAN, SPANISH, AND PORTUGUESE MEDICINE.

IN CHARGE OF A. M. FERNANDEZ DE YBARRA, M.D.,

New York,

Corresponding Member of the Medico-Chirurgical Academy of Madrid, Spain, the Argentine Medical Circle of Buenos Ayres, South America, and the Society for Clinical Studies, of Havana, Cuba.

Albuminuric Retinitis. (*Brazil-Medico*, Rio de Janeiro, March 8, 1893.) By Dr. Guedes de Mello.

Since the progress of organic chemistry has permitted accurate verification of the changes that take place in the urine during the course of the principal diseases of the blood, pathologists and clinicians have been constantly making use of the analysis of that excretion to elucidate some obscure points in diagnosis. The visual disturbances produced by kidney lesions were pointed out long before the recognition of Bright's disease by the presence of albumin in the urine, as well as before the albuminuria of pregnant women and convalescents from scarlatina came to be generally known. Amblyopia is a frequent concomitant symptom of albumin in the urine, and albuminuric retinitis is even found in old age and usually in both eyes. Sometimes unilateral or bilateral simple retinitis is met with without the presence of albumin in the urine, but this occurs in cases of granular kindey, which, after a certain lapse of time, become evident by the existence of albumin in the urinary secretion: this fact is what makes some authors erroneously claim that retinitis may "precede" the renal affection.

What are the forms of nephritis in which ocular disturbances manifest themselves without palpable evidence of renal lesion? The answer to this question is by no means easy. Assuredly the first thing to do is to find out the time at which the ocular disturbance appeared, although the ophthalmoscope is of no use to us in the diagnosis of those cases.

The author also refers to the case mentioned by Gowers, of a woman fifty-five years of age, with a characteristic bilateral retinitis albuminurica, whose urine was perfectly normal, and who had cardiac hypertrophy and high arterial tension, the second sound of the heart being increased in intensity.

Positive Signs of Death. (*Coimbra Medica*, March 15, 1893.) By Dr. Lopes Vieira.

This weighty point in medical jurisprudence is treated by the distinguished Portuguese professor in an able manner. He says that, as a rule, the old-time vulgar tests of approaching a lighted candle or a small polished looking-glass to the nose of the supposed dead person are still greatly relied on as good means of judging after the patient's pulse has ceased to be perceptible and the heaving motion of the chest has stopped. He contends that it is not an easy matter to pronounce one way or the other during the first few hours. The complete immobility of the body, the absence of respiration, the disappearance of cardiac pulsations, the fixedness and sinking of the eyes, the dilatation of the pupils, etc., are not in themselves conclusive evidences of death, but signs of decomposition following cadaveric rigidity can only be considered as conclusive proofs of the cessation of life.

[The reviewer three years ago saw in Havana, Cuba, a case of death by angina pectoris in which the face of the corpse seemed to be bathed in perspiration, the moisture reproducing itself after being wiped off, in spite of the presence of rigor mortis and other unmistakable evidences of death. This most extraordinary phenomenon was witnessed by several local physicians who also viewed the body. The funeral was on that account delayed several hours until decomposition had fully set in.]

BOOK REVIEWS.

Peripheral Neuritis. A Treatise. By James Ross and Girdson Bury. London: Charles Griffin & Co., 1893.

Dr. Ross died during the preparation of this work, and its completion was left to Dr. Bury alone. It opens with an historical account of the subject, in which it is shown that Graves was the first to suspect that certain palsies were of peripheral origin. The article on Landry's Paralysis is the best and most exhaustive ever written. It occupies seventy-five pages, and includes an historical account, a table of ninety-three cases, and a commentary on them. The authors hold that the disease is an acute peripheral neuritis. We have not space to speak in detail of the other subjects studied. It must suffice to say that there are articles on the neuritis caused by diffusible stimulants, by animal poisons (occurring in disease, *e.g.*, diphtheria, typhoid-fever, etc.), by metallic poisons, the dyscrasic form of the disease, and sensory and vasomotor neuritis.

A System of Genito-Urinary Diseases, Syphilology, and Dermatology. By Various Authors. Edited by Prince A. Morrow, A.M., M.D. In Three Volumes. Volume I. New York: D. Appleton & Co., 1893.

This truly is the day for systems. Like all novelties they are sometimes received with unkindly criticism, and with this manner of book-making as with all other

things it is easy to reach a *reductio ad absurdum*. When, however, the facts of genito-urinary diseases, syphilology, and dermatology are collated in the form of a system, not only is there no absurdity, but it can be stated that, provided the work is well done, an often-expressed need of the profession will be filled. It is probable that ninety per cent. of city livers suffer at one time or another in their lives from some form of disorder properly classed under Morrow's general headings, and it is certainly true that it is difficult to obtain the latest and most detailed knowledge of these subjects except the physician have a somewhat extensive library.

The distinguished editor is well fitted to pursue this work, and has in collaboration with him men whose reputations are more than local. His first volume covers only genito-urinary diseases. To it contribute Watson, Cabot, Bryant, Belfield, J. William White, Otis, Tilden Brown, Fordyce, Stimson, Bell, Wyeth, Keyes, Thorndyke, and others of equal note.

There are over a thousand pages of printed matter. After having run over it perhaps the majority of readers will experience a sense of disappointment. The announcement of the work suggested one of cyclopædic scope and proportions: that this has been attained cannot be claimed. Many of the articles are not scholarly studies, though even on this point there are exceptions. It can be claimed for the book, however, and this is what will make it popular, that it is eminently modern and practical. The latest and best therapeutics are to be found in it. Though the scholar will be disappointed, the man who wants a book to help him in the management of his cases will find here a valuable and reliable friend.

It is difficult to select any special article for commendation, but if some were to be chosen which represented best the work of both the scholar and the clear-minded surgeon, those of Cabot on stone in the bladder, prostate, urethra, and ureters; of White on stricture of the urethra; and of Fordyce on urinary fever might be taken.

The name of R. W. Taylor carries with it so much weight in genito-urinary surgery that it is somewhat of a surprise not to find it on the list. It is to be hoped that his views will appear in the subsequent volumes of the system.

Even though the medical *littérateur* would not be apt to give unstinted praise to this work, Dr. Morrow should be content with the "well done" which will surely come from the bulk of the profession.

NOTES ON THE NEWER REMEDIES: THEIR THERAPEUTIC APPLICATIONS AND MODES OF ADMINISTRATION. By David Cerna, M.D., Ph.D., Demonstrator of Physiology in the Medical Department of the University of Texas, Galveston; formerly Assistant in Physiology, Demonstrator of, and Lecturer on, Experimental Therapeutics in the University of Pennsylvania, etc. Philadelphia: W. B. Saunders, 913 Walnut St., 1893. Price $1.25.

This book might be appropriately called a Report from the Physiological and Therapeutical Laboratories for the last few years. It summarizes an immense amount of work which had to be done, but which will in great part be soon forgotten. A lesser part will be of practical value.

It does not reflect discredit on the medical profession that it would be a difficult, if not impossible, task to find any practitioner who could confidently assert to having heard of all the drugs mentioned in the book. That is, perhaps, a guarantee as to the suitability of its title, very few old friends being encountered in a perusal of its pages. Many of the drugs are undoubtedly ephemeral, and the difficulty of obtaining them hastens their therapeutical demise. Outside of the larger cities it would probably take several days to fill a prescription for *asaprol*. Still, the book bears its *raison d'etre* on its face. It is a compact, carefully-edited work, its strongest parts being the paragraphs on physical properties, solubility, and administration. The paragraphs on therapeutical applications, while not lacking merit, yet lack the

authority which a more extensive treatise would have. The value of the book as a work of reference would be increased by an index of diseases.

A Text-Book of Medicine for Students and Practitioners. By Dr. Adolf Strümpell, Professor and Director of the Medical Clinique at Erlangen. Second American Edition. Translated by Herman F. Vickery, A.B., M.D., and Philip Coombs Knapp, A.M., M.D., with Editorial Notes by Frederick C. Shattuck, A.M., M.D. New York: D. Appleton & Co., 1893.

The popularity of this volume as a text-book for both students and practitioners is evinced by the rapidity with which the previous edition of 1891 has been exhausted.

The present edition resembles the former in its general make up and typography; some fifty-six additional pages of reading matter have been necessitated by the various advances in the last two years; and eight new illustrations assist in illuminating the text.

The book seems well up to date; the paragraph on bathing in typhoid fever is timely, as at the present time the Brand system of baths is becoming a matter of routine in our hospitals.

In regard to the disinfection of typhoid stools the editor has inserted the very good regulations of the American Public Health Association, which cover disinfection in all cases of contagious or infectious diseases.

In the article on influenza no mention is made of the specific bacillus which was discovered by Pfeifir and Cannon in 1892. There is but a short account of amœbic dysentery; reference is made, however, to the excellent monograph of Councilman and Lafleur, who made such a careful study of this disease at Johns Hopkins Hospital, Baltimore, in 1891.

The chapters on nervous diseases occupy over three hundred pages; the subjects are treated in a clear and concise manner and often illustrated by the author's cases.

The book will be welcomed by both the student and busy practitioner; its worth is too well appreciated to need further comment.

Various Forms of Hysterical or Functional Paralysis. By H. Charlton Bastian, M.A., M.D., F.R.S.

It is a long while since we have had the pleasure of reading such an interesting and thought-generating book as the above.

The author warns us of the difficulties, often in the way, of proving that a case is not due to organic disease. Further, he warns us against that slovenly habit of mind which rests content with a diagnosis of hysteria or functional paralysis, and strives not to discover which part of the nervous system is at fault, and what the pathological lesion may be. Functional and hysterical are not interchangeable terms, rather the latter is merely a special type of the former. The body of the book is taken up by a study of localization. Carefully studied cases are given showing the cerebral and the spinal types. In the former the author thinks that we are able to localize in three regions: (1) Some part of the Rolandic convolutions; (2) The posterior third of the internal capsule; (3) Some of the outgoing fibres of the convolutions. In the latter we can localize (1) functional perversion of the pyramidal system of fibres; (2) functional defect in the anterior cornual. A valuable table, showing the varieties and characteristics of cerebral and spinal functional palsies, is given. It contains the gist of almost the entire book. In the appendix there are two very interesting papers, one on the muscular sense and the other on the neural processes underlying attention and volition.

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ORIGINAL COMMUNICATIONS.

THREE RARE CLINICAL CASES.

BY STANLEY BOYD, M.B., B.S., F.R.C.S.,

Surgeon and Lecturer on Anatomy, Charing Cross Hospital; Surgeon to Paddington Green Hospital for Children.

A CASE OF CERVICAL RIB.

CASE I.—The young woman whose portrait is annexed (Fig. 1) was recently brought to me by my house surgeon, Mr. Whitehead, who rightly regarded her case as one of considerable interest.

About two months previously, some slight pain had drawn the patient's attention to the left side of her neck, towards the root of which she had found a pulsating, tender swelling. On baring the neck and shoulders, the asymmetry due to this swelling was clear, and pulsation was visible from the supra-sternal fossa outward to the middle of the collar-bone. The pulsation was very slight behind the sterno-mastoid, and was most marked outside the muscle, about one and a half inches above the clavicle. On running the fingers down the line of the cervical transverse processes, one came on the left side to a firm swelling standing out from the spine above the collar-bone, to which there was nothing corresponding on the right. It was easy to make out that this swelling contained a mass of bone, convex backward, standing out horizontally from the spine, and ending externally in a blunt extremity. Over it lay the subclavian artery, of normal size, easily felt and compressed against the cervical rib.

The recognition of the true nature of the case would present no difficulty to any one who recollected the occasional occurrence of cervical ribs. Attention is generally drawn to them, as in this case, by pain, due probably

to some unnoticed injury; frequent and anxious fingering keeps up the tenderness. On one occasion I saw a surgeon remove what I believe was a cervical rib for obstinate brachial neuralgia supposed to be due to an osteoma of the first rib; in this case the outer end of the bony mass articulated roughly with the upper surface of the first rib. It is worth recalling that the presence of a cervical rib has, in one instance, at least, proved beneficial, for it rendered possible a cure by compression of an aneurism rising up above the clavicle. In the case above described complete compression of the subclavian was effected with as much ease as that of the radial.

HYPERTROPHY OF HALF THE FACE.

Case II.—Pure hypertrophy of half the face is so unusual that every case is worth recording. There was absolutely nothing in this boy's personal or family history to throw any light upon the cause of the hypertrophy, which had been noticed from birth and had merely kept pace with the growth of the rest of the body. The patient's mother was not interviewed, so I cannot say whether she held any views as to the etiology of her son's condition.

The hypertrophy did not affect the scalp or cranium, but began at the zygoma and extended to the lower border of the jaw on the left side (Fig. 2); the pinna was not affected, but thence forward to the mid-line of the face the parts on the left side were larger than on the right. Especially marked was the difference between the left and right halves of the lips and tongue. The epidermis, the growth of hair, and the teeth on the left side were normal; there was no indication, either to sight or touch, of nævoid tissue in the cheek, which part was considerably thicker on the left than on the right side; the left bones were apparently larger than the right, and actual measurement of the lower jaw showed this to be the case. In the plane of the upper lip—

	Inches.
Right half of face	$4\frac{7}{8}$
Left half of face	$5\frac{7}{8}$
Right ramus of lower jaw	$2\frac{5}{8}$
Left ramus of lower jaw	$3\frac{1}{8}$
Right half of body of lower jaw along lower edge	$3\frac{7}{8}$
Left half of body of lower jaw along lower edge	$4\frac{3}{8}$

The left side of the tongue was proportionately larger than any other part; it gave the idea that it contained an abnormal quantity of connective tissue, and its surface was warty from the presence in numbers of large rounded papillæ (not seen in the photograph, owing to tremor). The lymphatic glands of the neck were normal, and there was no evidence of any circulatory or nervous disturbances.

ATROPHY OF ONE CHEEK.

Case III.—As contrasting with the above, I may briefly mention the following case of atrophy of one cheek seen in my out-patient clinic at

FIG. 1.—Case of cervical rib, marked by a black line just above the left clavicle.

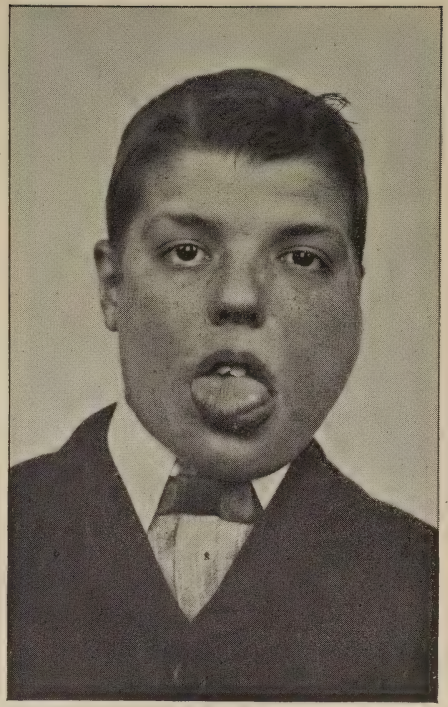

FIG. 2.—Hypertrophy of the left half of the face.

FIG. 3.—Atrophy of the right cheek.

the Paddington Green Children's Hospital in 1887. F. H., aged fourteen, came complaining that her right cheek had been wasting away for a year, —gradually for the first nine months, more rapidly since. Eighteen months earlier she had received a box on the right ear, which had been followed by earache and occasionally recurring discharge. There was nothing else in the personal or family history which seemed to be connected with the girl's trouble. This consisted merely in a disappearance of the fat of the right cheek (Fig. 3), and especially of that mass which lies beneath the masseter and constitutes the "sucking pad." The bones on the two sides were of equal size, the muscles reacted to equally faint currents, and the sensation and color of the cheek were normal. This case appeared to be allied to the rare facial hemi-atrophy, and might be interpreted as supporting the view that there are special trophic fibres in the fifth nerve-trunk.

PALPITATION OF THE HEART.[1]

BY JAMES T. WHITTAKER, M.D.,

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PALPITATION of the heart, though considered as a separate affection, is a symptom and not a disease. It is the symptom of many diseases and conditions, and is, though very simple in its manifestations, very complex in its cause.

Mere beating of the heart does not constitute palpitation. As everybody knows, the heart never ceases to beat. Sleeping and waking the heart continues to pulsate. It takes its rest between pulsations. The first beat is long, the second short, and there is a pause between. During the pause the heart rests. Nor does violent beating of the heart constitute what is known as palpitation. The heart beats violently under effort. Sometimes the heart beats violently and the patient is unconscious of it. Palpitation is such an action of the heart as shakes the wall of the chest so that *the patient feels it.* That increased action, palpitation, which occurs under effort, running, climbing, etc., is physiological. Palpitation is pathological when it occurs without any effort at all.

It is impossible to understand anything about palpitation without a knowledge of the innervation of the heart. The modern anatomical idea of the nerves of the heart is this: The branches of the vagus and sympathetic, which form the heart plexus, each develop, after their entrance into

[1] Read before the Ohio State Medical Society, at Put-in-Bay, Lake Erie, June, 1893.

the thoracic cavity, a plexus in front of and behind the ascending aorta. Both unite to form the plexus coronarii about the coronary arteries. Ganglia are found in the wall of the auricle, especially in its septum, and at the borders of the arteries. The ventricles have no ganglia at all. The motor fibres originate, according to the studies of His last year, in that part of the central nervous system which becomes later the ganglia of the anterior horns. The sensitive nerve-fibres originate from cells in the spinal cord.

The development of the sympathetic cord has been until recently in doubt. Kölliker, as long ago as 1850, showed the resemblance of the spinal and sympathetic ganglia of the communicating branches and of the posterior roots, intimating that the sympathetic ganglia very probably originated from the spinal ganglia. But it was only recently that Onodi was able to demonstrate that the sympathetic ganglia are, in fact, offsprings of the spinal ganglia. The sympathetic ganglia belong, according to the evidence of development, to the domain of the posterior roots. All the nerve-fibres of the posterior roots, all the ganglion-cells, and all the end organs are, according to general acceptance, sensitive and not motor. So that the ganglia of the sympathetic nervous system belong to the sensitive system.

This fact has an important bearing on the function of the heart ganglia. Both the vagus and the left recurrent—*i.e.*, the spinal accessory—send, united with sympathetic fibres, branches to the heart. All heart nerves carry at the same time cerebro-spinal and sympathetic fibres, but the heart ganglia belong only to the sympathetic system. These ganglia are only in the auricles,—*i.e.*, in the receiving chambers. They feel at once the effect of poison in the blood.

Until a better explanation is found, we must believe that the motor impulse of the circulation originates in the heart muscle itself. The muscle makes rhythmical contractions without being excited by nervous elements. The heart muscle is the automatic motor of the circulation. If its power is reduced by pathological change or its capacity diminished, there occurs much more immediate damage to the circulation than from changes in the heart ganglia. Anomalies connected with the heart itself, arising from general diseases, find explanation in accurate study of the muscles of the heart. The nerve-centres do not originate the motion. The nerves merely inhibit and regulate the rhythm. Hence all the factors may be concerned in palpitation.

Gley corroborates previous investigations on the conduct of the heart under electrical irritation. It had been shown by previous studies by Ludwig, Hoffa, Kulian, and Einbrodt, that the heart under electrical irritation is put into delirium and finally stands still. The finest examples of palpitation of the heart are found in Basedow's disease. In this condition palpitation usually prefaces for months or years the exophthalmos and the goitre. There is at the same time general tremor and neurasthenia. So that Basedow's disease is supposed to act upon the heart through the nervous

system. But disease of the thyroid gland begets a peculiar train of nervous, vascular, and chemical changes, thyroid cachexias, which are not without influence in producing palpitation. These cases of palpitation are benefited temporarily by atropine, which is a tonic to the vagus. A case that I saw with one of my colleagues, Dr. Ransohoff, was most markedly benefited by injection of the extract and later by administration of the desiccated thyroid gland. This palpitation is probably toxic.

Most cases of palpitation can be referred to three causes,—direct, reflex, and toxic. These causes rarely operate singly or alone. Among the direct causes are irritation in the origin of the nerves, as organic disease of the brain, including the finer lesions of the cortex. Palpitation sometimes occurs as an alternating neurosis, with migraine, or with epilepsy,—in fact, palpitation is sometimes the aura of epilepsy. This palpitation is best relieved by atropine and the bromides.

The action of the heart under psychical influence is, up to certain limits, physiological. Beyond these limits, or when the action of the heart is felt by the patient, it is, as stated, pathological, and constitutes palpitation. Thus, the heart is said to beat high, to leap, in conditions of exaltation, joy, anger, expectation, or it flutters with fear, fright, anxiety. Nervous patients are seized with palpitation under examination. Many individuals may not pass for life insurance until they have remained some time in the consultation-room and the heart's action has become quieted. Stage fright often takes the form of palpitation. Public speakers have not infrequently fallen victims to the tumultuous action of the heart, which breaks distant blood-vessels in the brain or leads to over-strain and paralysis of the heart itself.

I am consulted every year by students affected with palpitation in the study of diseases of the heart. Peter Frank had such violent attacks, with intermittent pulse, while he was writing his work on diseases of the heart, that he believed himself to be the subject of aneurism. After he had finished his work and sought diversion in travel, the attacks disappeared.

Among the direct causes must be considered also diseases of the heart itself, which, whether of its walls or valves, is liable to be attended with palpitation. On the other hand, the most serious diseases of the heart may exist without palpitation. In his studies of diseases of the heart, Fraentzel, in speaking of acute and chronic myocarditis, lays much stress, with Rühle, on arythmia, and also emphasizes the fact that, especially in young persons, even long-continued irregular pulse may be a condition without significance, and that, on the other hand, the rhythm may remain normal even with severe disease of the heart muscle. This author shows also, by a case which came to autopsy, that paroxysmal tachycardia is sometimes a symptom of chronic myocarditis.

Pestreich reports seven cases of fatal heart-failure after palpitation, the result of bodily strain.

Romberg describes the condition of the heart muscle after typhoid fever,

scarlet fever, and diphtheria. Parenchymatous and interstitial processes occur in these diseases. These are the cases of palpitation from organic disease where the heart muscle is actually poisoned by toxines. These are the cases which are benefited by the heart-tonics, especially strychnine, and, above all, by graduated exercise. I have repeatedly seen bad cases cured by graduated climbing of mountains, after the method of Oertel.

In obesity the overloaded heart palpitates to do its work. In emaciation the insufficiently nourished heart struggles to expel its contents.

The reflex causes are various diseases of other organs, as of the stomach. Dyspepsia, from whatever cause, is often marked by palpitation. The condition may be caused here by direct—*i.e.*, mechanical—pressure of a distended stomach, and by mechanical occlusion of the great vessels. It is more frequently toxic, and results from the absorption of noxious matter through the alimentary canal. Thus, palpitations are found in connection with sick-headaches. Calomel clears up these cases.

Diseases of the uterus are frequently connected with palpitation. Proof is the relief of the condition with the cure of the disease. One of my worst cases was cured by exsection of a diseased Fallopian tube. In another case under my observation intense palpitation resulted from irritation of the prostatic urethra. The palpitation awoke the patient at night with a sense of impending death and a cold sweat. Posterior urethritis has in its train of symptoms headache, neuralgia, hysteria virilis, and, at times, palpitation of the heart. Here, too, the condition is partly if not chiefly toxic, in that toxines are absorbed into the blood and directly—*i.e.*, through the coronary arteries—irritate the heart muscle. With the elimination of these toxines, mostly by diuresis, the palpitation ceases; or the attacks are prevented altogether,—*i.e.*, the condition is cured, by deep injections with strong solutions of the nitrate of silver.

Diseases of the ovaries and attacks of colic produced by the passage of gall-stones and kidney-stones induce attacks of palpitation.

Under toxic causes may be included impoverishment of the blood. Palpitations occur in typical outbreaks in cases of anæmia of all forms, including that from hemorrhage or other exhausting discharges. These cases are often expressions of mere exhaustion or insufficient nutrition. They are also due to toxic products which develop in the blood in these states. So tuberculosis and Bright's disease are prefaced for a long time by attacks of palpitation, and are accompanied by them through their course. The heart in these conditions becomes excitable under the slightest effort, or under no apparent effort. Such individuals are said to be sufferers from erethismus cordis. Here, too, there is an insufficient nutrition as well as a toxic action. Absorption of disease products, ptomaines, from various organs and from the alimentary canal has already been mentioned. The point is that palpitation depends chiefly upon a poisoning of the heart muscle itself.

Palpitation occurs in Bright's disease especially in connection with

hypertrophy of the heart, and repeated attacks of palpitation in middle life should excite inquiry for the other neuroses—the headache, hebetude, vertigo, etc.—of this affection. Evidence of this condition is revealed also by the increase of blood-pressure in the arteries. There are physiological periods in which blood-pressure is increased and palpitation is common, as during menstruation and at the grand climacteric. It will soon be common practice to test the blood-pressure of every man past the age of thirty in the study of arterio-sclerosis, for the common saying is true that a man is as old as his arteries. Hot baths eliminate the toxines and relieve or prevent the palpitation of Bright's disease.

Alcohol is one of the most frequent causes of palpitation. Parkes showed that the pulse of a man who drank only whiskey for six days numbered 90.9 in the minute, while that of a man who drank only water in the same time beat only 73.6 per minute. Coffee and tea produce the same effect, but in much less degree. Tobacco is a powerful poison to the heart. The first use is wont to produce attacks of palpitation. The habitué experiences palpitation as well as pain. The pain alone, however, is severe enough to make him quit the use or abuse of tobacco.

Lehr says that students who at the end of the session consume the night in study and sustain themselves with tobacco, strong tea, and coffee form twenty per cent. of cases of the palpitation of neurasthenia, while forty per cent. is composed of merchants and artisans who have used themselves up in unsuccessful rivalries and struggles.

Thus palpitation depends upon many and various causes. In many cases the cause is in the heart itself. This tumultuous action is best restrained by the application of ice-bags over the heart. Sometimes the cause is entirely outside the heart, and is the expression of an irritation of the nervous system. But the irritation itself is in the majority of cases toxic. Some toxine is absorbed into the blood and poisons the heart muscle or the centres of its nerves.

The study of a case of palpitation of the heart soon teaches the physician that he cannot successfully practise medicine by routine.

CHANGES IN THE URINE SUBSEQUENT TO NEPHRECTOMY—TWO CASES.[1]

BY P. MAX FOSHAY, M.S., M.D.,
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THE published records of the changes in the urine following nephrectomy are very scant and very incomplete; hence it is thought the following report will be of some general interest. In each of the cases here reported Dr. Dudley P. Allen, of this city, was the operating surgeon, and it was through his kindness that the writer was enabled to make the extended observations recorded in the subjoined tables. In the first case, one of floating kidney with calculi, the observations were, unfortunately, not begun until a week after the operation. The second case was one of sinus following nephrotomy, and the observations began upon the day of operation. The following tables present the result of the examinations of the urine from day to day, in each case for a period of nearly six weeks after the operation.

TABLE I.

The results of the daily examination of the urine of Case I.

Date.	Total urine.	Specific gravity.	Solids.	Reaction.	Urea in 1 c.c.	Urea in 24 hours.	Ratio of urea to solids.	Indican.	Clinical notes.
Nov.	c.c.		gm.		gm.	gm.			
7	746	.....	.....	.....	0.019	14.27			
8	1195	.....	.....	.....	0.013	15.13			
9	645	.....	.....	.....	0.0215	13.87	.....	.....	Headache.
10	955	.....	.....	.....	0.0175	16.71	.....	.....	"
11	1230	.....	.....	Alkaline.	0.0115	17.25			
12	1310	.....	.....	Neutral.	0.010	15.60			
13	560	1020	25.10	Alkaline.	0.0235	13.16	1:1.9	.....	Bad headache.
14	1680	.....	.....	Acid.	0.0105	17.64			
15	1200	1017	47.53	"	0.0145	17.40	1:2.7		
16	1000	1017	39.61	"	0.019	19.00	1:2.1	Slight.	
17	1410	1008	26.28	"	0.012	16.92	1:1.6	"	
18	1100	1017	43.56	"	0.0165	18.15	1:2.4	"	
19	1155	1012	32.29	"	0.013	15.02	1:2.2	Increased.	
20	1330	1012	37.19	"	0.011	14.63	1:2.5	"	Headache.
21	1375	1025	80.10	Alkaline.	0.011	15.13	1:5.3	Slight.	"
22	900	1020	41.94	"	0.013	11.70	1:3.6	Gt. incr.	
23	1160	1015	40.54	"	0.011	12.76	1:3.2	Slight.	
24	470	1025	27.38	Acid.	0.027	12.69	1:2.2	Increased.	Slight fever.
25	485	1026	29.38	"	0.0275	13.34	1:2.2	Gt. incr.	" "
26	585	1022	29.99	Alkaline.	0.0225	13.16	1:2.3	Slight.	" "
27	575	1026	34.83	Acid.	0.0255	14.66	1:2.4	"	" "
28	775	1022	39.73	"	0.017	13.18	1:3.0	"	" "
29	575	1019	25.46	"	0.0155	8.91	1:2.9	"	" "
30	725	1020	33.79	"	0.016	11.60	1:2.9	"	" "
Dec.									
1	900	1018	37.75	"	0.018	16.20	1:2.3		
2	1055	1018	44.25	"	0.016	16.88	1:2.6		
3	1475	1015	51.55	"	0.010	14.75	1:3.5		
4	1375	1014	44.90	"	0.012	16.50	1:2.7		
5	1100	1017	43.57	"	0.012	13.20	1:3.3		
6	425	1018	22.02	"	0.021	8.93	1:2.5	.....	Very poorly.
7	455	1019	20.14	"	0.024	10.92	1:1.8	.....	" "
8	320	1025	18.64	"	0.023	7.36	1:2.5	.....	Quite ill.
9	515	1020	24.00	Alkaline.	0.017	8.72	1:2.8		
10	840	1014	28.50	Acid.	0.012	10.08	1:2.8		
11	1050	1014	34.25	"	0.011	11.55	1:2.9		
12	1065	1013	32.26	"	0.013	13.85	1:2.3		
13	810	1017	32.08	"	0.014	11.34	1:2.9		
14	800	1015	27.96	"	0.0145	11.60	1:2.4		
15	1100	1010	25.63	"	0.0115	12.65	1:2.0		
16	720	1018	30.20	"	0.0175	12.60	1:2.4	.....	Patient went home.
	1450	1013	43.90	"	0.010	14.50	1:3.0	.....	Urine of February 27, 1893.

[1] Reported to the Cleveland Society of Medical Sciences, February 20, 1893.

TABLE II.

Result of the daily examination of the urine of Case II.

Date.	Total urine.	Specific gravity.	Solids.	Reaction.	Urea in 1 c.c.	Urea in 24 hours.	Ratio of urea to solids.	Indican.	Clinical notes.
Jan.	c.c.		gm.		gm.	gm.			
19	600	1030	41.94	Acid, highly.	0.025	15.00	1:2.7	Considerable.	
20	440+	1030	30.76	" "	0.032	14.08	1:2.2	Great excess.	
21	535+	1027	33.66	"	0.039	20.87	1:1.6	" "	
22	625	1025	36.41	"	0.0295	18.44	1:2.0	Slight decr.	Temperature rose to 101°.
23	540+	1033	41.52	Alkaline.	0.0245	13.23	1:3.1	Decreased.	Temperature rose to 102°.
24	950	1016	34.82	Acid.	0.0155	14.73	1:2.4	"	
25	1140	1015	39.84	"	0.014	15.96	1:2.5	Slight.	
26	930	1018	39.00	"	0.0165	15.35	1:2.5	Increased.	Temperature rose a little.
27	1400	1015	48.93	"	0.014	19.60	1:2.5	Slight.	
28	1000	1018	41.94	"	0.018	18.00	1:2.3	"	
29	1600	1015	55.82	"	0.016	25.60	1:2.1	"	Considerable fever.
30	Absent.	.....	.....	.....	.....	.....	.....	.....	Considerable fever.
31	1600	1013	48.46	Acid.	0.0165	26.40	1:1.8	Slight.	
Feb.									
1	1100	1011	28.19	"	0.0135	14.85	1:1.9		
2	1200	1015	41.94	"	0.0165	19.80	1:2.1		
3	1800	1012	50.33	"	0.0105	18.90	1:2.7		
4	1000	1020	46.60	"	0.014	14.00	1:3.3		
5	1300	1016	48.46	"	0.015	19.50	1:2.5		
6	1600	1013	48.46	"	0.012	19.20	1:2.5		
7	1350	1013	40.79	"	0.013	17.55	1:2.3		
8	1450	1015	50.68	"	0.012	17.40	1:2.9		
9	1400	1013	45.67	"	0.010	14.00	1:3.3		
10	900	1015	31.46	"	0.0135	12.15	1:2.6		Fever, headache, lumbar pain.
11	950	1012	26.56	"	0.013	12.35	1:2.2		
12	800	1022	41.00	"	0.023	18.40	1:2.2		
13	1400	1015	48.93	"	0.0105	14.70	1:3.4		
14	1150	1014	37.51	"	0.014	16.00	1:2.3		
15	900	1018	37.75	"	0.0175	15.75	1:2.4		
16	1300	1012	36.35	"	0.011	14.30	1:2.6		
17	1250	1013	37.86	"	0.011	13.75	1:2.8		
18	1275	1015	44.46	"	0.011	14.03	1:3.2		
19	1050	1019	44.04	"	0.0135	14.18	1:3.1		
20	1000	1018	41.94	"	0.015	15.00	1:2.8		
21	950	1013	28.78	"	0.013	12.35	1:2.3		
22	1100								
23	1700	1018	71.30	Alkaline.	0.0125	21.25	1:3.4		
24	1500	1018	62.91	"	0.014	21.00	1:3.0		
25	1000	1017	39.61	"	0.015	15.00	1:2.6		
26	1200	1018	50.33	"	0.014	16.80	1:3.0		
27	1300	1016	48.46	Acid.	0.014	18.20	1:2.7		
28	1000	1020	46.60	"	0.0175	17.50	1:2.7		

TABLE III.

Weekly averages of quantity, solids, and urea (of Case I.), deduced from Table I.

Week.	Urine.	Solids.	Urea.	Ratio of urea to solids.
	c.c.	gm.	gm.	
November 7–13.	949	.....	15.14	
" 14–20.	1268	37.78	17.25	1:2.7
" 21–27.	793	47.70	13.35	1:3.0
" 28–December 4.	983	45.33	14.00	1:2.8
December 5–11.	684	27.30	10.10	1:2.4
" 12–16.	919	29.63	12.41	1:2.4

TABLE IV.

Total averages of quantity, solids, and urea at the end of each week (of Case I.), deduced from Table III.

Date.	Urine.	Solids.	Urea.	Ratio of urea to solids.
	c.c.	gm.	gm.	
November 13	949	.....	15.14	
" 20	1108	37.78	16.19	1 : 2.7
" 27	1003	42.74	15.25	1 : 2.9
December 4	993	44.03	14.62	1 : 2.9
" 11	839	35.66	12.36	1 : 2.7
" 16	879	32.65	12.39	1 : 2.6

TABLE V.

Weekly averages of quantity, solids, and urea (of Case II.), deduced from Table II.

Week.	Urine.	Solids.	Urea.	Ratio of urea to solids.
	c.c.	gm.	gm.	
January 19–25	690	36.99	16.03	1 : 2.3
" 26–February 1	1271	43.72	19.98	1 : 2.2
February 2– 8	1385	50.77	18.05	1 : 3.1
" 9–15	1071	38.41	14.76	1 : 2.6
" 16–22	1275	38.91	14.44	1 : 2.7
" 23–28	1283	53.20	18.29	1 : 2.9

TABLE VI.

Total averages of quantity, solids, and urea at the end of each week (of Case II.), deduced from Table V.

Date.	Urine.	Solids.	Urea.	Ratio of urea to solids.
	c.c.	gm.	gm.	
January 25	690	36.99	16.03	1 : 2.3
February 1	981	40.36	18.00	1 : 2.2
" 8	1183	45.56	18.03	1 : 2.5
" 15	1127	41.99	16.40	1 : 2.6
" 22	1201	40 45	15.42	1 : 2.8
" 28	1242	46.83	16.86	1 : 2.9

It is unsafe to generalize from two cases, and the writer has been unable to find any record of similar analyses, hence only a few brief comments upon these tables will be made. It seems entirely probable that in all cases of long-standing disease of one kidney, as were the two here reported, the removal of the diseased organ must free the remaining one from the strain of eliminating the poisons absorbed from its neighbor, and that there should be a better performance of natural function by the remaining organ after

nephrectomy. An hyperæmia of the single organ is said to always follow a nephrectomy, but why this should be, in the face of the presumption just stated, is difficult to see, especially in view of the fact that the organ has had months of training for the extra burden, during the time that its fellow was doing a continually decreasing proportion of excretory work. Nevertheless the tables would seem to distinctly indicate such an hyperæmia in each of these cases, in that the maximum daily quantities of solids and urea were produced in the second, third, and fourth weeks after the operation.

In the first case a period when the urine was alkaline occurred in connection with a protracted and severe headache at about the same time as noted by Graves[1] in his cases. The only period of alkaline urine in the second case occurred in the sixth week.

In both cases the maximum daily average of quantity excreted occurred in the third week.

It will be seen that the maximum daily amount of solids was reached in the fourth week of the first case and third week of the second, the maximum in the sixth week of the latter case merely indicating the re-establishment of normal diet and function.

The maximum of urea will be found in the third week of the first case and second week of the second case. In each case the urea reached its maximum one week before the total solids attained a maximum,—an interesting fact but difficult of explanation.

In both cases pus and epithelial cells occurred in considerable amounts for the first week and continued in gradually decreasing amount. In Case II., during the second and third weeks the urine contained blood in sufficient quantity to color it very markedly.

Both patients recovered completely and are now in excellent health.

SOME POINTS ON THE TREATMENT OF TYPHOID FEVER.

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All physicians, perhaps, are agreed upon several points in the treatment of typhoid fever. It is conceded that proper prophylaxis, hygienic measures, and disinfection should be practised in all cases. Great care is taken to prevent house-epidemics by sterilization of food and drink, and in most cities the authorities help to prevent the further spreading of the disease by

[1] Two cases of nephrectomy reported by S. C. Graves, of Grand Rapids. Medical News, vol. lxi. pp. 349 and 612.

means of some system of sewerage and general sanitation. Notwithstanding this general agreement, in practice often the methods adopted or the means of applying them are faulty. Not infrequently I have heard physicians insist upon the purity of water from a well located sixty feet from cesspools or privy-vaults. Indeed, it has been frequently taught in our medical colleges that if fifty feet intervene between the well and barn or privy the water is pure for drinking purposes.

The question of the purity of water and its liability to contain disease germs has occupied the attention of sanitary authorities, municipal councils, boards of health, and water-system contractors, until we have reached conclusions very different from the opinions held by the medical world, including medical teachers, only a few years ago. A well whose supply is on a plane lower than any source of infection, as a cesspool, barn, or privy-vault, unless impervious strata intervene, within a distance of five hundred feet is unsafe. If the stream of supply flows under the source of infection to the well, with no intervening impervious strata, five thousand feet may not be safe. Flowing water which has become contaminated should not be considered safe under a distance of five miles, unless the stream is subject to considerable agitation. Sand-filtration of water, as is practised in what is termed the "point system" adopted by some cities on lakes and rivers, is not a protection against disease. In this, as in all well and lake-shore water, nothing is safe but sterilization by boiling. Especially is this true during the prevalence of typhoid fever. Water from many artesian wells seems to be an exception to the general rule for well water. At least my experience has been such as to justify the expression of this opinion. During a residence of more than nine years in Waukegan, where the supply of drinking water has been received from ordinary surface wells and artesian wells, I have had many cases of typhoid fever. Not one of these cases has originated in a house where the artesian water was used for drinking. It seems to me that this is very strong circumstantial evidence of the purity of this water for drinking purposes.

I am firmly convinced that no water which has not been sterilized is safe for a typhoid fever patient except artesian water, and I should advise the sterilization of that unless it rises from a depth of at least one thousand feet and the source is many miles away. In the case of the artesian wells in this city, their source is easily determined by the geological dip. The rock strata from which our supply comes reaches the surface in the hills of Wisconsin, many miles north and northwest, and the least depth is found in what is known as the central well, about eleven hundred and forty feet. The food must also be sterilized. All freshly-cooked foods are sufficiently sterilized and require no further attention unless allowed to become cold before using, in which case they should be reheated. This applies to liquid as well as solid food unless kept in air-tight, sterilized vessels. A sufficient heat is reached usually by allowing the liquid to be raised slowly to the boiling-point and maintaining this temperature ten to forty-five minutes,

according to the time since the food was prepared and its degree of exposure to ordinary atmospheric air. Perfectly fresh milk from healthy cows is aseptic, and, like pure blood, an excellent germicide. After a short exposure to the atmosphere at ordinary temperatures milk should be sterilized. This can be done in any one of the various ways that authors have suggested, but usually heating to the boiling-point will be sufficient. An antiseptic solution should be kept ready to disinfect all clothing and vessels used. I like a solution of the corrosive chloride of mercury, one to two thousand. I often use Platt's chlorides for the same purpose. Vessels should be disinfected before and after using, and all dejecta should be immediately subjected to the same process.

All these measures are as necessary to modify the course of the disease in a patient as to prevent contagion. Cold-water bathing—90° to 60°—is an essential in the treatment of typhoid fever. I prefer the sponge-bath, but the graduated cold bath may often be used with comfort and benefit to the patient. The bath seems to favor the elimination of toxic matters. It reduces the fever, and if properly applied produces no unpleasant results. Of one hundred and eighty-nine cases I have collected lately treated by this method, there were but four deaths. Roque and Weill, however, strenuously maintain that the cold bath has no specific action in typhoid fever, and that it does not exercise any influence upon the production of toxines, these agents disappearing with the decline of the temperature. If these conclusions are correct, some element must have entered into the treatment of the cases above reported other than the baths, to which most of the good results were due.

A careful consideration of the points mentioned above, and a studious review of the etiology and course of typhoid fever, have led me to the following conclusions in reference to the treatment of this disease.

The disease is self-limited, and no medical treatment will materially shorten its course. The disease runs a longer or shorter course according to the number and virulence of the bacteria generated in the individual case,—these attaining their maximum at the climax of the disease. The final result as regards the life of the patient depends upon the amount of reserve force or nutritive stores the system has to place in resistance to the prostrating effects of the fever, and the ability of the constitution to bring that reserve into use. The function of the physician is to keep the system in as good condition as possible, to reinforce the failing powers, and to meet emergencies as they arise. The first of these objects is best attained by systematic bathing, and by the administration of such drugs as will aid and equalize the circulation and maintain the integrity of the heart. For this purpose the exhibition of digitalis, strophanthus, or convalaria is invaluable; and nux vomica and quinine, when they can be given, are excellent adjuvants. In this connection it must be remembered that the secretions are diminished in typhoid fever, and remedies should be directed to this phase of the disease. The skin is aided by bathing; the skin and kidneys

are both stimulated by nitre; the kidneys are also stimulated by digitalis; the liver is stimulated by ipecac and mercurials. The secretion of gastric juice is greatly diminished, if not totally suppressed, in typhoid fever. This is one of the most serious factors of the disease. It is known that normal gastric juice is a powerful germicide, and it may be confidently asserted that if this secretion could be kept in its healthy condition, the dread of typhoid fever would be reduced to a minimum. The mineral acids are administered in this condition. Their value is usually stated as being in the order here named,—hydrochloric, nitric, sulphuric, phosphoric. My own preference is for the aromatic sulphuric acid, and that preference is based upon clinical experience. The aromatic sulphuric acid keeps the tongue moist throughout the course of the disease. This is evidence that the remedy stimulates the stomach to greater secretion of its normal juices. It is known that this acid is a stimulant to the pancreas. Now the pancreatic juice assists in the completion of the digestion of all forms of food. It appears in these cases to increase the biliary secretion also.

The second object of treatment, the maintenance of the patient's strength, depends for its success largely upon the success attained in increasing the secretions and absorptive function of the alimentary canal. Food is the necessary element in our effort to support the system. *It must be administered abundantly and from the beginning of the disease.* The safety of the patient may depend and in serious cases does depend upon the faithfulness with which this rule is applied during the first and second weeks of the attack. Stimulants may not be needed until the third and fourth weeks, but food abundantly and tonics judiciously are required from the first. I give in adult cases two litres, if possible, of fresh or sterilized milk or its equivalent in beef extract in twenty-four hours; by the stomach if that viscus will bear it, and if it will not I give it by the rectum.

The secretions from the stomach and pancreas under the influence of the mineral acids, especially the aromatic sulphuric, are usually sufficient to digest that amount, apparently. While it is impossible to tell just how much food will be digested in these cases, it is certainly our duty to let the deficiency of nourishment fall upon nature and not upon the physician and nurse. Animal broths and other liquid foods may be given as the taste of the patient may indicate. This course of feeding gives a reserve that may be relied upon in the later stages of the disease, when little but stimulants can be administered. Children will bear almost as much feeding during typhoid fever as adults, and in this class of patients proper nourishment is most important. In adolescents it is quite as important as in childhood or manhood that the system be sustained by crowding nourishment, especially during the early stages of the disease. Objection has been made to this method with typhoid patients on the ground that not infrequently the stomach rejects food altogether or it may pass through the alimentary canal undigested. The opportunity to supply some nourishment by the rectum, the better condition of the patient when sufficiently nourished, and the im-

possibility of knowing the power of the alimentary tract, afford sufficient reason to hesitate before acting upon an objection having so little foundation in fact.

The third object of treatment—meeting emergencies or symptoms as they arise—is the field that has been most fully occupied in the literature of the therapeutics of typhoid fever. If tepid or cold baths do not reduce the temperature and high heat becomes a dangerous element in the disease, the judicious use of any of the antipyretics may be recommended, but the character of the case should help to decide what agent shall be employed. My own experience and observation are adverse to the use of any of the coal-tar preparations in serious cases of typhoid fever, or in any other exhausting disease. I have never administered antipyrin to a case in my own practice except when advised by counsel. I have never seen a case in my own practice or in that of other physicians where antipyrin was administered in which death did not result. I have never had opportunity to examine an individual that had been treated with antipyrin in typhoid fever and eventually recovered whose sickness was not apparently prolonged and whose heart was not weak and irregular. Of the thirty cases referred to hereafter, one was away from home, so that she was not able to have the services of her own physician except in consultation, and I was called to attend the case. At the family physician's recommendation the fever was kept under control by acetanilid. Our experience was annoying. Several times she came near dying from heart-failure. And finally, after we had worried through the case and saved the patient, we found that eight weeks had been consumed in the struggle. Aconite and gelsemium have been safer in my hands. But I believe digitalis and quinine with systematic bathing will be found quite sufficient and much safer in most cases. The wet pack is sometimes useful. For nausea and thirst few remedies will be found more grateful or give quicker relief than ice or a combination of shaved ice and cream. If diarrhœa is obstinate, opium and turpentine in adults, or opium and copaiba in children, may be required. I have often found a mixture of the camphorated tincture of opium and spirits of nitrous ether sufficient. If hemorrhage occurs it will be necessary to add ergot to these mixtures or give some other astringent. Delirium usually subsides after using the bath. The principles of treatment herein related guided me in the care of thirty successive cases of typhoid fever lately occurring in my practice, including the case already mentioned, and I am able to record no unfavorable result. These cases varied in age from three years to forty years, most of them occurring between the ages of twelve and twenty-two. Several were exceedingly severe. I observed, when the amount of nourishment given was below the prescribed quantity, that the patient's symptoms grew worse. Aromatic sulphuric acid and digitalis combined were given from the beginning. If the bowels required it a mercurial was administered at first, my preference being mercury with chalk. When diarrhœa occurred and the combination of camph. tr. opium and spr. nitrous

ether did not control it, I often used a capsule of hydrarg. c. creta, Dover's powder, and quinine, varying the proportions to suit the age and condition of the patient. I used gelsemium to aid in controlling the temperature, especially if there was tendency to nausea. Systematic bathing was insisted upon, with frequent changes of clothing, and an abundance of fresh air. Water was boiled except where from the artesian wells.

It will be observed that I incline to the belief that medication is chiefly serviceable in typhoid fever to aid the system to survive the exhausting effects of the disease. Abundant nourishment is the most essential of all our means to accomplish this result. Aiding the secretions helps nature to assimilate the food. The disease is self-limited, and if we do not fail to supply the proper amount of nourishment the mortality will be reduced to a minimum.

LINEAR CRANIOTOMY IN MICROCEPHALUS, WITH A REPORT OF TWO CASES.

BY CLAYTON PARKHILL, M.D.,

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In the consideration of any operative procedure it is appropriate that attention should first be paid to the pathological condition demanding surgical interference. That peculiar lack of cranial development attended with more or less complete idiocy, which has been called microcephalus, has long been recognized, but is as yet imperfectly understood. It has been claimed by some that the cause lies in a premature ossification of the cranial bones which prevents the proper development of the brain, while others have held that it is a condition of *agenesis* dating back to fœtal life and involving both brain and cranium. In the light of recent reports it seems probable that both views are right,—that there are at least two distinct classes. Several cases have been observed where there has been a complete synostosis at birth followed by no mental development whatever, and others where there was a certain amount of development until the time of closure of the fontanelles, after which it ceased. That this premature closure of the cranial cavity is invariably the cause of microcephalus is disproved by such cases as that reported by Greisinger, who found a girl aged nineteen with such a skull as would correspond to the age of ten or twelve, and who had not one of the sutures ossified including the frontal. Yet this was a typical microcephalic idiot. In short, we are forced to the conclusion advanced by the author above quoted, who said that "Microcephalus is to be regarded as an arrest of development, of which the source is sometimes in the brain itself

and sometimes in the cranium." And that this classification is not complete is shown by my second case, which has what would seem to be a megalocephalic skull with a microcephalic brain owing to the extraordinary thickness of the cranial bones. Now comes the question, "Is it always possible to classify these cases?" As this must depend largely on the history of the individual, obtained from parents or friends, it is at once apparent that it cannot be done. In neither of my cases have I been able to learn if there was a premature closure of the fontanelles.

It might be asked, "Are all cases to be benefited alike by operative procedures?" Reasoning *a priori*, and taking into consideration at the same time the widely differing results obtained by operation, we should conclude not. Those cases dependent upon arrested or defective development of the brain-case with synostosis will probably be benefited, while those having as their cause an *agenesis* of the brain with all its envelopes will probably not be benefited. And yet some one has suggested the possibility of stimulation to the brain due to the increased cranial capacity, and the operation itself, benfiting this class. It is too early, however, to formulate rules when but fifty-two cases have been operated upon in the world. It is now more than two years since Lannelongue reported his first two cases. This brilliant French surgeon was the pioneer in this new field of surgery, while Keen in America and Horsley in England were the first in their respective countries to follow him. A report of the following cases, which are the first recorded in the West, will indicate the technique followed by the writer:

CASE I.—L. G., aged four years and eight months, was referred to me in the Arapahoe County Hospital from the service of Dr. J. T. Eskridge. He began having spasms when two days old, and these lasted four days. After this he had whooping-cough for four months. He never seemed quite as bright as the other children in the family, although this difference did not seem very marked in the first year or two. One year previous to operation he commenced having convulsions. After the spasmodic seizures he would not be able to get up for a week. Six months later the spasms became very severe and increased in frequency, often occurring two or three times a day. He would fall on the right side of his face, and his mother thinks the right leg was most affected. Dr. John Chase examined the eyes and found marked nystagmus. Intelligence was not sufficiently good to enable the child to answer questions, nor was sight sufficiently good to test. I found the boy a hopeless idiot. He was restless and walked about continually in a stooping posture with irregular, uneven gait. The saliva dribbled from his mouth and he sucked his thumb. His facial expression was blank and he continually uttered an idiotic cry. His attention could not be held on any object, and he would not play continuously with anything. He could utter two or three syllables, which his parents could interpret as meaning certain things, but which no stranger could possibly understand as words. His head was markedly microcephalic and conical, owing to the lack of development of the frontal and parietal eminences. It measured

from the glabella to the inion ten and three-fourths inches; biparietal, six inches; and in circumference, eighteen and three-fourths inches. Every attempt was made in his four weeks' residence in the hospital prior to operation to teach him something, but with the result of utter failure.

On the day preceding the operation, on October 9, 1891, the bowels were moved by a calomel purge; he was thoroughly bathed and his head shaved. The head was then scrubbed with soap and water, afterwards with ether, and finally enveloped in towels wrung out of mercuric bichloride solution one to two thousand in strength. A half-hour before the operation he was given five drops of the tincture of nux vomica, with a drachm of whiskey. Ether was administered, and in my opinion should always be used unless there is some strong contra-indication other than the condition of the brain. The well-known property of ether to produce fulness of the cerebral vessels is here called into requisition. The vitality of the brain centres is low at best in these conditions, and every method of supplying nutrition should be made use of. When anæsthesia was complete the dressing was removed from the head, and the same process of cleansing was used as on the preceding day. In deference to Mr. Horsley's suggestion, the head was enveloped in towels wrung out of hot bichloride solution, and in addition a hot-water bag was placed under the head for a pillow. This was with the object of supplying heat to the feeble vital centres and thereby lessening shock. While an assistant supported the head, he at the same time compressed the right temporal artery.

An incision was made three-fourths of an inch to the right of the median line directly to the bone. This extended from the anterior hairline to within an inch of the inion. There was comparatively little hemorrhage, the arteries being caught by hæmostatic forceps. A similar incision was made through the periosteum, and it was retracted to either side. A three-quarter-inch trephine was applied midway between the parietal eminence and the sagittal suture. The skull proved to be about one-eighth of an inch in thickness, with hardly a trace of diploë and quite hard. With the Keen forceps the opening was extended forward and backward in an elliptical shape until it practically corresponded with the scalp incision. This bony opening had a length of six and a half inches, and a greatest width of three-quarters of an inch. The dura bulged somewhat and was rather darker than usual, otherwise it was normal. With a pair of scissors, a portion of the periosteum was removed corresponding in extent to the bony wound. A one to three-thousand bichloride solution was used to irrigate the wound and wash away the débris. Iodoform was lightly insufflated over the area of operation, and interrupted sutures of silk were applied a half-inch apart anteriorly and three-quarters posteriorly. No drainage was used. Iodoform was dusted over the line of the wound, and an ordinary gauze and cotton dressing made to envelop the entire head, to be held in place by a specially-made cap.

About thirty minutes were consumed with the anæsthetic and operation.

The child was slightly pale when sent to bed, but otherwise showed little evidence of shock. He rested well, and his recovery in a surgical way was uninterrupted. His temperature reached 100.5° F. about eight hours after the operation, but rapidly fell to normal and remained so. When the wound was dressed on the eighth day it was perfectly united by first intention and all the sutures were removed. Within twenty-four hours after the operation it was observed that his expression was better and that he had lost his restlessness. Before the end of a week he would play continuously with objects and amuse himself for hours with picture-books. On December 29 the left side was operated on in a similiar manner, except that an additional bone incision was made an inch and a half long by half an inch wide, extending downward towards the ear from the middle of the long bony wound. This was with the object of freeing the speech centre. The time occupied, including the dressing of the wound, was twenty-three minutes. Surgical recovery from this operation was equally rapid and uneventful. The temperature never rose above 99.1° F. Union by first intention was perfect when the wound was first dressed on the tenth day.

The child has grown physically and has lost nearly all of that stoop which characterized his former condition. His face is now illuminated by intelligence, and he understands anything ordinarily comprehended by children of his age. He obeys commands from his parents perfectly, and understands directions given his brothers and sisters, and insists on their obedience.

In January Dr. Chase fitted him with glasses, R. E. — 2 spherical, L. E. — 2 spherical. The report for May is that he has very little nystagmus, and observes objects promptly at ten feet. He still has convulsions, but they are very light, and have occurred on an average of one every two weeks for the last two months. He has stopped drooling and now but rarely puts his thumb in his mouth. Many words have been acquired, and he puts them readily into properly-constructed sentences. In short, he has been converted from a condition of drivelling idiocy into one of fair intelligence in these short months. His development has been quite twice that of the average child under normal conditions. I am prepared to say, therefore, that, if every other case operated upon in the world had died as the result of that procedure and only this child had survived to show this amount of improvement, the operation is not only justifiable but can be safely recommended.

Case II.—E. P., aged five years and nine months, native of Leadville, Colorado, was referred to me for operation by Dr. Eskridge. She was unable to utter a single word. She seemed to see poorly, and it is doubtful if she heard at all. She was fairly well grown, but her extremities seemed weak and her gait was uncertain. Neither paralysis nor contractures of any muscles. She walked about restlessly uttering a plaintive idiotic cry. She would indicate thirst by going to the water-pitcher, and hunger by chewing her clothing; she ate heartily of any food which she liked, and would simply

close her mouth to indicate she had enough. She manifested no intelligent interest in anybody or anything. A plaything would be taken into her hand and immediately cast aside. Her attention could not be attracted and held in any way. She did not indicate by any sign a desire to defecate or urinate. She did not seem to distinguish between her parents and strangers. When about two years old, she became restless, fretful, and slightly feverish. Dr. Eskridge believes that this probably ushered in a low grade of lepto-meningitis.

The rectal temperature on the day preceding operation was 98.5° F., but on the morning following 99.5° F. Head temperature: right parietal 97° F.; left parietal 97.6° F. Circumference of head twenty and one-eighth inches; over head from one auditory canal to the other thirteen and one-fourth inches. From right auditory canal to median line on top of head six and three-fourths inches; left, six and one-half inches. Right parietal eminence more prominent than left and farther forward. The skull presented the appearance of being megalocephalic rather than microcephalic. The operation was performed May 19, 1892, and the preparations for it were practically identical with those resorted to in the former case. On removing the trephine button, it was found to measure a full quarter of an inch in thickness. The skull in the area of operation ranged from this to a third of an inch. This extreme thickness of the brain-case made it microcephalic instead of megalocephalic, as indicated by external appearance. Keen's forceps were again used, but so tough did the bone prove that the blade was broken across its middle by direct pressure. A force was being used of from one hundred and sixty to two hundred pounds. This is probably the only instance in which this instrument has been broken, and is certainly an exceptional case, but it is an indication that the forceps should be stronger.

The incision in the bone was made an equal width with the first case and fully eight inches in length. Notwithstanding the extreme difficulty experienced in cutting the bone and the delay incident to finishing the opening with the rongeur, after breaking the forceps, the operation was completed in twenty-six minutes. The dressing of the wound was the same as in the previous case. The wound was uncovered on the thirteenth day, when it was found perfectly healed. The temperature, however, has been irregular even to the present time. The greater part of the time it has been normal, and never above 101° F., yet it varies without any assignable cause. This is probably dependent upon a low grade of lepto-meningitis, which Dr. Eskridge believes has existed since the beginning of her malady. The variation of temperature before operation would certainly support the notion. Further than this the child seems in excellent physical health. Taking into consideration the short period of time since the operation and that but one side has been done, it is too soon to expect much improvement in the mental condition. Her nurse is sure that she hears now, and says she can attract her attention better than before. She will play with toys

or books continuously, and even pick them from the floor. She will kiss her nurse when asked to do so, and there are occasional gleams of apparent intelligence in her face.

Fifty-two cases are now on record, of which twelve patients have died, making a percentage of twenty-three. In a large majority of those patients who have recovered improvement has been noted, and in some it has been, as in my first case, very great. The methods of operation have varied considerably. In Lannelongue's first case he operated in a manner similar to the one I have described, and this has been the method of Keen and Horsley. Since that, however, he has made bone incisions of various shapes, sometimes attacking the frontal and occipital regions as well as the parietal. His plan of incision has varied from that described above to that of a U, a V, or a T. Theoretically at least, I think the plan which I have used is best, as it converts the sides of the skull into two large bone-flaps, which may be expanded by the growing brain. Wyeth and McClintock have each operated upon both sides at the same operation. The former connected his bone incisions anteriorly and posteriorly, and made lateral cuts from the middle. The latter made incisions from either end of his long openings. They both spread these flaps forcibly with their fingers. Taking into consideration the weak condition of the vital centres from the lack of development of the encephalon, I cannot but think this operation is too extensive, both as involving too much shock and necessitating too prolonged a period of anæsthesia. I can conceive no objection to operating upon one side at a time, while much might be said in its favor. Mallet and chisel, saw and forceps, have been used on the bone. Gerster in particular has claimed that the skull can be opened with greater safety to its contents with the chisel than with the trephine. With this I cannot agree. I have used the latter instrument many times and have never yet wounded the dura. But a very moderate degree of care is necessary to avoid such catastrophe, while the uncertainty of the chisel is most apparent. In addition to that, there can be no doubt of the injurious effects of the repeated concussions of the mallet in both Lanphear's and Binnie's cases. The saw is certainly not a rapid instrument, and I cannot believe as safe as the forceps. The theory of the Keen forceps is ideal, but the weakness of the instrument is apparent in at least one point in my last case. They enable one to operate rapidly, and the question of time is an all-important one in these cases.

An apology is perhaps due for going to such an extent into the detail of these cases. But the operation is so new that methods can only be formulated and conclusions reached by full reports of each recorded case.

TWO CASES OF HYALINE FORMATIONS IN THE OPTIC NERVE.

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THE routine use of the ophthalmoscope in the hands of careful ophthalmologists has made us familiar with every variation from the picture of the normal nerve-head and outlying fundus oculi. One envies the opportunities of the early observer as he was brought face to face for the first time with the different pictures in the unexplored regions of ophthalmology. There are few departures from the normal condition yet to be described, but in the cases reported in this article a very rare and most striking anomaly of the optic nerve was met with. Through the kindness of Dr. B. A. Randall an excellent drawing of the fundus of Case I. has been secured, which, better than any description, gives a clear conception of the startling change in the appearance of the nerve-head containing these rare hyaline masses.

"Drusen," as the Germans have termed hyaline bodies in the optic nerve, were first discovered in microscopic sections, where they appeared anterior to the lamina cribrosa, and resembled in their concentric marking the corpora amylacea of the prostate. They sometimes occur in the form of a ring encircling the central retinal vessels in the head of the optic nerve, and have received their name from a fancied resemblance to a mass of mineral containing crystals.

The anatomical position of these masses, as revealed by microscopic study, suggested to H. Müller in 1858 the possibility of their being seen with the ophthalmoscope, the truth of which was soon demonstrated. The number of cases studied ophthalmoscopically is nevertheless small, and this peculiar condition must be classed as one of the rarest of ocular anomalies.

Perhaps the most valuable contribution to the literature of the subject is the recent publication by Hirschberg and Cirincione.[1] In this article Hirschberg relates the case of a woman aged fifty-nine, with sarcoma of the choroid in the left eye, who sought advice on account of failing vision in that eye. No view of the papilla could be obtained because of the intraocular tumor, but in the right eye the startling appearance of the nerve-head described under the term "drusen" was discovered. Vision in this eye was normal, and there was no contraction in the visual field. Hirschberg thus describes the appearance of the disk: "The border of the papilla is irregular because of a knob-like, glistening formation which lies

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[1] Centralbl. f. prakt. Augenheilk., June and July, 1891.

more or less deep in the tissue of the nerve, and projects upon the neighboring retina over the shining edge of the disk, while the central excavation is less involved." Enucleation was performed on the left eye, in the optic nerve of which the microscope revealed a similar condition. An exhaustive examination by many different methods showed that these bodies were made up of a non-crystalline, organic material closely resembling elastin in reaction.

De Schweinitz[1] reports a case in which microscopic examination followed careful study of the case with the ophthalmoscope, and was very valuable as showing the anatomical situation and relation of these hyaline formations, and as demonstrating, in his case at least, the fact that they were distinct from the so-called hyaline excrescences which spring from the lamina vitrea of the choroid.

Many observers regard hyaline bodies in the nerve-head as originating in the choroid, where it impinges upon the optic nerve, and even, according to many authorities, forms part of the lamina cribrosa. This was undisputed until more recent studies of anatomical preparations showed that the choroid itself was not involved, being plainly separated from the globular formations.

The fact that in most cases of hyaline bodies in the optic disk the choroid remains free from similar growths, as well as the comparative frequency of small hyaline masses in the choroids of old people unaccompanied by similar changes in the optic papilla, would lead us to doubt the unity of these two affections. However, as we shall note later on, cases of hyaline bodies in the nerve-head are regarded as a senile degeneration, possessing that feature in common with the hyaline formations of the choroid.

The probability of the so-called "guttate choroiditis" being the same affection as that described as "verrucosité hyaline de retina"[2] has been strongly urged, and "guttate choroiditis," as mentioned by Tay and afterwards by Nettleship, is acknowledged to be identical with hyaline changes in the lamina elastica. The question as to the identity of "drusen" and these choroidal lesions is as yet unanswered. It has been urged that the degenerative changes of the choroid are histologically separate from those seen in the nerve, being epithelial in origin; while careful examination shows no trace of epithelium in the latter.

In the cases reported here no gross choroidal lesion existed. Before reporting the cases in detail let me briefly summarize the interesting points.

Hyaline bodies in the optic nerve are rarely seen in the eyes of young people. Nieden,[3] however, reports a few cases occurring early in life, and Wadsworth[4] states that he has seen six or eight cases, the majority of which

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[1] Transactions of the American Ophthalmological Society, 1892.
[2] Transactions of the British Ophthalmological Society, 1888.
[3] Archives of Ophthalmology, vol. xviii. p. 198.
[4] Trans. American Ophth. Soc., 1892.

were in people below middle life. They are usually due to senile change, and when found in young people grave ocular disease or some organic affection accompanies them. They have been met with in glaucoma, and have even been said to cause glaucoma by preventing excretion through the posterior channels of the optic nerve. (Terson.)

Oeller observed hyaline bodies coexisting with degenerative retinal affections. Schoeffer, Ancke, Remak, and Gessner found them in old retinitis and irido-choroiditis. In old age globular masses in the papilla cause no functional or organic disturbance, and vision remains uninfluenced by their presence. In some cases the nerve-head has been entirely covered by globules, yet the nerve-fibres entirely escaped injurious pressure, the patient showing no defect either in central vision or in the visual field. In my case the nerve was covered with excrescences, but sharpness of sight equalled $\frac{6}{7\frac{1}{2}}$. The failure to secure perfect vision was readily accounted for by the high mixed astigmatism existing. Although vision is not interfered with in these cases, the disk is quite as remarkably altered in appearance as in a high grade of optic neuritis.

The question as to the origin or cause of this affection is yet to be settled. There are two theories to explain why a small portion of the optic nerve anterior to the lamina cribrosa should be the seat of hyaline degeneration. The older view is that the globules spring from the choroid which surrounds the nerve-sheath and forms part of the lamina cribrosa. The later theory, that of Hirschberg, holds that it is an isolated and distinct affection, having for its seat the nerve-head and being entirely different from the senile changes of the lamina vitrea. Further observation is necessary before this question can be definitely settled. Hyaline formations in the optic nerve show no tendency to originate any inflammatory reaction, and in those cases in which optic neuritis was found the hyaline bodies simply coexisted with, but were not dependent upon, the neuritis. They have also been found in a nerve previously the seat of atrophy.

Pathologically we find that hyaline degeneration occurs in the fibrous tissues, and resembles both colloid and amyloid degenerations in appearance, but acts differently to various chemical reagents. Ziegler says, "It occurs chiefly in the adventitious tissue of the arteries. The adventitia becomes transformed into a shining, translucent, strongly-refracting substance. It is found in the vessels of the brain and lymph-glands, in inflammatory hyperplasia, and in structureless membranes like the hyaloid membrane in the eye." He dismisses the subject of the nature of this degeneration with the simple statement that nothing definite is known concerning it.

Hyaline bodies are not caused by inflammation, which is mentioned among the causes of hyaline degeneration, as the optic nerve is found free from all traces of neuritis in the most pronounced cases of "drusen." De Schweinitz's case also seems to prove that the hyaline degeneration seen in the adventitious coat of the central retinal artery was the result of the

previous inflammatory process in the optic nerve, and was different in nature from the bodies in the nerve-head. This was inferred from the fact that Weigert's method stained the "drusen" a deep black, while the changes in the vessel wall were not so stained.

One of the most remarkable features of these cases is the freedom from severe symptoms of increased tension, as the retinal vessels in cases studied with the ophthalmoscope have been observed to be completely hidden under the glistening globules, which, moreover, project anteriorly, necessarily displacing the vitreous body. According to Nieden, fibres of the optic nerve are compressed, but only those conveying impressions of blue. However, all other observers have failed to find disturbed visual fields.

The following are the notes of my case of "drusen."

Mrs. B. D., aged fifty, consulted me in December, 1891, for poor vision, excruciating neuralgic pains in her eyes and over her forehead, and because the glasses which she had purchased at an optician's six years before were no longer of any service to her. She had always been strong and healthy until five years ago, since which time her general health has been very poor. Two years ago she was prostrated by an attack of neuralgia, general in distribution, and accompanied by diplopia lasting several weeks. She does not think there was any noticeable strabismus, and the double vision slowly disappeared. Her mental condition is below par, and she is apprehensive of serious organic cerebral disease. There is insanity in her family history. Just before consulting me she suffered from a severe attack of spasmodic facial neuralgia, the movements being confined to the right side of her face. She complains now of numbness and shooting pains in her right arm and the right side of her body. Her appearance indicates poor health. There is intense anæmia. She has œdema of the lids, which are margined by dark-bluish rings. No alteration in reflexes. Almost constant frontal headache of sharp neuralgic character greatly interferes with sleep. She has no œdema of the ankles, nor does she complain of cardiac distress or dyspepsia. Her arteries are soft, and the apex-beat is normally placed and not increased in intensity. An analysis of the urine gave negative results.

From these obscure nervous symptoms and the diplopia above mentioned, together with greatly impaired vision, I was led to suspect a degenerative spinal lesion with commencing optic atrophy. The sharpness of sight then recorded was in the right eye $\frac{5}{30}$, in the left eye $\frac{5}{19}$, not improved by spherical lenses. The pupils reacted promptly and equally to light, tension of the bulb was normal, and the field of vision, very carefully taken, showed no abnormality for form or color.

The ophthalmoscope revealed a most striking picture. On both nerves were seen curious, cauliflower-like bodies, glistening brightly from rounded edges as the light from the mirror was reflected from the translucent globular masses. The upper portion of each disk was entirely concealed by the formations, which resembled somewhat the appearance of a collection of fat-globules under the microscope. The rest of the disk showed small, scat-

tered, rounded bodies anterior to the lamina cribrosa. The retinal vessels as they emerged from the central cup were encroached upon, showing narrowing of their calibre, and passed in front of the glistening mass, the summit of which was seen with + 4 dioptric lens. The eye-ground was not seen clearly with any spherical lens in the ophthalmoscope, but the hazy appearance was due to a mixed astigmatism. There were absorptive choroidal changes through the fundus, and around the optic disk was a broad halo. There were present all the evidences of long-standing eye-strain. On the lower portion of the disk was a rare vascular anomaly, as is clearly shown in Dr. Randall's drawing (see plate). The three largest retinal veins united in a common trunk, which did not enter the porus opticus but was lost under the lower temporal vein, apparently joining it, but dipping down into the choroid immediately below the disk's border. No lesions resembling "drusen" were present in the choroid.

After careful measurement under hyoscyamine her vision improved, much to my surprise, to $\frac{6}{7\frac{1}{2}}$ in her right eye and $\frac{6}{6}$ in her left. I ordered glasses to be worn constantly: O. D. — 1.50 sph. ⌓ + 3.00 cyl. ax. 105°; O. S. — 0.75 sph. ⌓ + 2.25 cyl. ax. 70°. In a year from this date vision is still normal, with only slight advance in the "drusen" over the disk.

I have recently seen Mrs. D., who states that she has had another serious illness, in which she lost conciousness and suffered intense pain in branches of the trifacial and at the base of the brain. She again noticed transient diplopia. She recovered under large doses of potassium iodide. Her sharpness of sight remains normal, and yet the optic disk—as is well shown in the accompanying plate—presents a truly striking picture.

While Dr. Randall was at work on the illustration which accompanies this article, he kindly asked me to see a patient who showed well-marked "drusen" on each disk. His notes of the case are as follows.

Mrs. Wm. W., aged sixty-five, consulted him on August 15, at which time he noted the following facts. "Right eye long defective, worse of late, painful on use of other eye, especially since recent attack of dysentery. Chisolm gave + 2.50 sph. for reading, but little encouragement as to improvement of right eye, a year or two since; Loring confirmed this later. The ophthalmoscope shows in the right eye cornea clear; pupil active, medium; lens shows peripheral and posterior striæ; vitreous full of floating shreds; nerve looks pallid and probably colloid; no gross choroidal changes. Tension normal. Vision $\frac{6}{6\,0}$? Type D = 1 not with + 2.50. In the left eye the media are clear except for peripheral striæ; 'drusen' involvement of disk especially down and in. Macular region and general choroid fairly normal. Vision $\frac{6}{1\,2}$, no lines. D = 0.75 reads at 25 centimetres with + 3.50 sph. ℞ Pil. ferri iodid." Under date of August 19, 1893, there is the following note: "Returns from sea-shore improved. In the right eye vision is $\frac{6}{4\,0}$, while in the left it is $\frac{6}{9}$. Vitreous is clearer on the right side and 'drusen' of nerve-head more clearly seen and more marked than on left. No choroidal splotches."

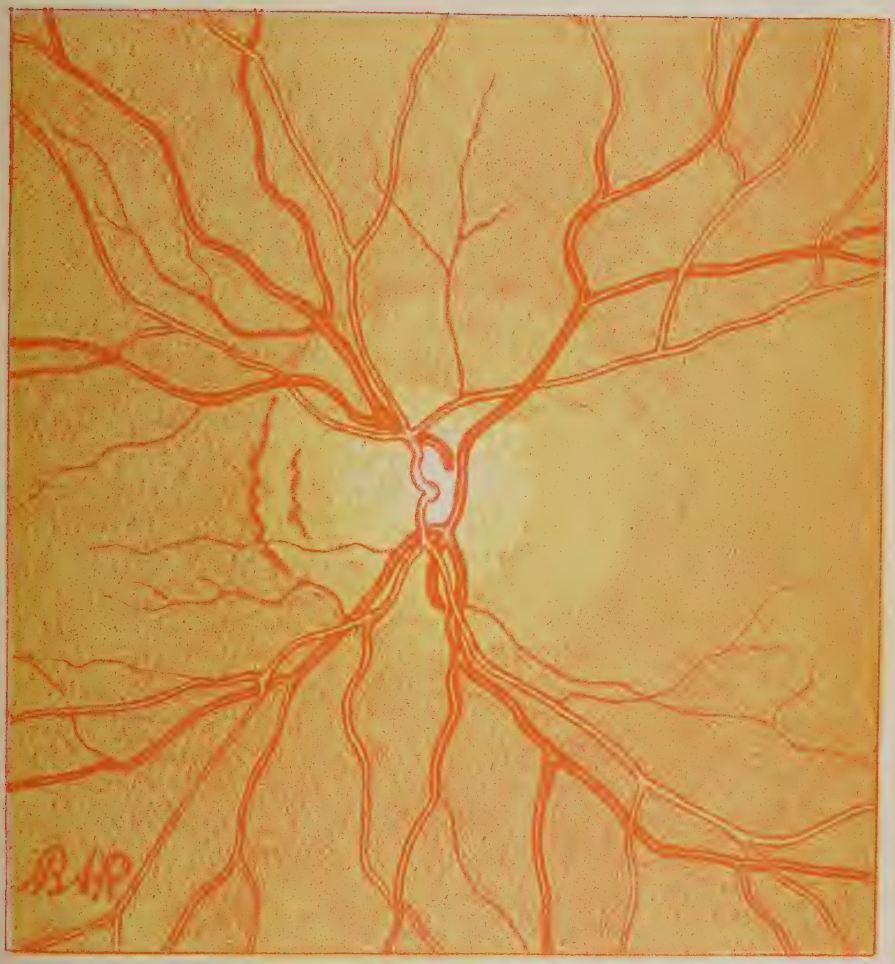

PLATE.—HYALINE FORMATIONS IN THE OPTIC NERVE (DRUSEN). (Reported by John T. Carpenter, Jr., M.D.) The nerve-head, almost concealed by the globular, whitish, translucent masses, is shown in the centre. The upper, inner, and lower edges of the nerve cannot be made out, and the hyaline formations project over its edges. Around the entire disk is a broad, light-yellow halo, containing crescentic pigment accumulations to the nasal side. An interesting vascular anomaly is shown at the lower edge of the disk, where three large veins unite, and, instead of piercing the central portion of the nerve-head, form a large trunk, which dips into the choroid below the disk. The central retinal vessels are slightly constricted at their exit. The rest of the fundus is healthy.

VARICOCELE.[1]

BY H. L. JENCKES, M.D.,
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ENLARGEMENT of the spermatic veins, or varicocele, is said to occur in about one male adult in every ten. The appearance of this condition generally upon the left side seems to be owing to the absence of any valve in the left spermatic vein at its entrance into the corresponding renal vein. The majority of cases cause so little inconvenience that they require no treatment. Those of a more painful nature may be relieved by the application of a well-adjusted truss or by the wearing of a suspensory bandage. In serious and painful cases various surgical procedures have been resorted to for the purpose of obliterating the enlarged veins. Such measures have occasionally been followed by serious results, such as phlebitis, pyæmia, and atrophy of the gland.

Erichsen, Curling, and Escallier had two deaths each from twisted sutures. Gross had one death following the application of the ligature, and Gould mentioned a death from pyæmia after Lee's operation.[2] Professor Agnew[3] describes an operation which he had practised for twenty years without having any alarming symptoms or witnessing atrophy of the gland. It consists of applying a double ligature subcutaneously around the veins, and is very similar to Ricord's method. In these operations the ligatures will require tightening several times, and will be from eight to ten days in cutting their way through.

Another method, that I will designate as Lister's, seems far less complicated than Ricord's. It consists in making an incision an inch in length a little below the external abdominal ring, and dividing the tissues down to the large venous trunks which are found passing up from the scrotum. In this operation but two venous trunks are found, and in passing a double ligature around these veins one feels that he is completely cutting off the return circulation. This would be the case were it not for the existence of a plexus of very small veins which communicate with the spermatic vein. This operation is the one preferred by Sir Joseph Lister,[4] and according to him promises the best result with the least amount of danger to the patient.

A favorite procedure with some surgeons consists in simply exposing the veins to the air. The blood coagulates, the veins shrink, and in a few days

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[1] Read before the Dubuque, Iowa, Medical Society.
[2] Holmes's System of Surgery, Am. ed., vol. ii. p. 949.
[3] Agnew's System of Surgery, vol. ii. p. 566.
[4] Sir Joseph Lister, Medical Register, April 23, 1887.

spontaneous division occurs or the veins are reduced to a fibrous cord. This is known as the open method, or the method by exposure.[1]

A method of obliterating these veins by instrumental pressure with Williams's varix-clamp[2] was described by me in an article in the *American Journal of the Medical Sciences* for July, 1883. The radical treatment consists, then, in the obliteration of these veins by the ligature or the knife, by exposure, or by compression between the blades of a clamp.

Division and excision, as Stimson in his "Manual of Operative Surgery" says, "are unsafe, even when the veins are compressed above and below by hare-lip pins and twisted sutures."

Sir Benjamin Brodie,[3] Sir Everard Home, and Delpech recommended and used ligatures. Delpech, having operated for a double varicocele, was assassinated by the patient. Upon the death of the assassin his testicles were found atrophied. Atrophy and phlebitis are not the only objections to the ligature: it is excruciatingly painful, and, as Dr. Gross says, "pain is a great evil." The main objections to subcutaneous ligation are the difficulties experienced in tightening the loop and the time required for it to cut its way through.

The radical cure as effected by the varix-clamp is the occlusion of the veins by continuous instrumental pressure. In applying the instrument, separate the spermatic artery and vas deferens from the enlarged veins, and with a tenotomy-knife puncture the anterior of the scrotum an inch above the testicle; in this puncture insert the pin at the end of the blade. This pin prevents the veins from slipping from the grasp of the instrument, the blades of which can be compressed to within one-sixteenth of an inch of each other. The pain produced by the pressure is of a dull aching character, and for the first hour or two is the most severe. An anodyne should be now given, and repeated *pro re nata*, three or four doses of morphine given a few hours apart being generally sufficient. In the application of this instrument upon a large and very troublesome varicocele, I fortunately found one dose of morphine sufficient. The instrument occluded the veins as effectually as if they were encircled by a ligature. The pressure should be continued four or five days, and at the expiration of that time, should much œdema of the scrotum follow the removal of the instrument, a flaxseed poultice will hasten its absorption.

Dr. Williams, who has operated on two hundred cases, without a death, and with a successful result in ninety-eight per cent. of the cases, says, "Owing to the rapidity of the cure and freedom from internal suppuration, the dangers and inconveniences of the ligature are avoided."

It is scarcely necessary to add that cleanliness and antiseptic principles should be carried out in whichever method the surgeon may select.

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[1] Stimson, Manual of Operative Surgery, p. 375.

[2] Williams, Chicago Medical Journal and Examiner, May, 1879.

[3] Curling, On Diseases of the Testis, 2d ed.

The radical operation usually practised in the hospital of the University of Pennsylvania consists in carefully exposing the pampiniform plexus of veins by an incision one and a half inches in length, passing around the mass two sterile silk ligatures about one and a half inches apart, securely tying them, and excising the intervening portions of veins. The external wound may be closed by three or four fine sutures: drainage is omitted. Primary union may be expected if no fault in the antiseptic technique has occurred. Professors White and Wood, in speaking of this operation, say, "The result has been satisfactory in every instance, and in some instances a complete transformation was wrought in the patient's character, every vestige of neurasthenia disappearing."[1]

H. Royes Bell, in his able article on "Diseases of the Male Genital Organs,"[2] speaks very highly of the operation of excision. Regarding M. Breschet's method of compression, he says that it is now seldom adopted. This operation, however, is quite different from the one I have described.

THE TREATMENT OF POTT'S DISEASE, WITH ESPECIAL REFERENCE TO THE EARLY STAGE.

BY BERNARD BARTOW, M.D.,

Clinical Professor of Orthopædic Surgery in the University of Buffalo, New York.

When Pott's disease is subjected to treatment in its early stage—*i.e.*, before the occurrence of angular deformity—its behavior suggests that in this stage it may be influenced by therapeutic agents with greater advantage than at any subsequent period of its development. In a very large percentage of such cases perfect arrest of the disease may be effected and angular deformity prevented; furthermore, this result my be secured in a space of time much shorter than is required to accomplish the arrest of the disease when treatment has been delayed until angular deformity has made its appearance. The serious view with which the disease is generally regarded, its dangerous complications and formidable sequelæ, all become greatly modified under these circumstances. Abscess and paraplegia then become rare events, and the generalization of tuberculosis—*e.g.*, tubercular meningitis, etc.—is greatly diminished in frequency. The pathological conditions which characterize the early stage of Pott's disease are favorable to this view,—*i.e.*, the focus of disease at this period is of small extent; the vertebral body has suffered no material change in its shape; the weight-

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[1] American Journal of the Medical Sciences, vol. cv., No. 2.

[2] Bell, International Encyclopædia of Surgery, vol. vi. pp. 584 *et seq.*

bearing function of the vertebra has not as yet been seriously deranged. As a consequence, reflex muscular contraction and all other forms of neural disturbance which are the effects of the morbid process are greatly modified. Viewing the completeness of recovery which commonly follows efficient treatment in the early stage of Pott's disease, one is strongly inclined to regard the tubercular process at this period somewhat as a benign matter; that is to say, more importance may be attached to the functional use of the diseased vertebræ, and the mechanical force which is thereby exerted upon the inflamed bone, for promoting the extension of the disease than to its inherent tendency to invade new tissues.

If, following localization of the disease, the functional use of the part were for a time abolished, the healthy tissues would seem to offer sufficient resistance to the infecting agent not only to prevent its extension, but also to render the encapsulated focus incapable of doing further harm as a centre from which remote infection could emanate. Taking into account the efficiency of mechanical treatment for arresting the disease in its later stages, when the pathological conditions offer the maximum of resistance to therapeutic measures, it is proper to assume that the same degree of effort applied to the treatment of the disease in the early stage would be relatively more effectual in promoting the arrest of the morbid process, and restoring the parts to a state of integrity.

With so many advantages of practical value to be secured by the timely recognition of the disease and the early resort to restraining treatment, the wonder is that it should be the *exception* that treatment is begun in the early stage. In explanation of this fact, the reasons commonly stated refer to the difficulties of diagnosis in the early stage,—*e.g.*, the insidious invasion and encroachments of the disease, the obscure character of the symptoms, etc. These should not be regarded as sufficient to excuse the physician for overlooking the disease in its early stage, especially when, as frequently happens, parental solicitude will unaided often approach nearer to a correct diagnosis than the medical opinion through which relief has been sought. This statement is no exaggeration, judging from the frequency with which this occurrence is referred to when obtaining the histories of such patients. The truth is that the earlier symptoms in this class of cases have a close resemblance to many minor functional disorders. Some physicians appear unwilling to believe that so formidable a disease as Pott's can have a beginning apparently so insignificant; or they are only too ready to explain it away as a matter of transient importance, relegating it to the class of undetermined ailments, as, *e.g.*, spinal irritation, nervous prostration, rheumatism, neuralgia, etc. This self-deception, as well as deception of the patient, often goes on until the occurrence of angular deformity suddenly throws new light upon the matter. This frequent oversight by physicians is to be attributed, in larger degree than to any other cause, to the importance that is attached to the occurrence of angular deformity as a clinical event of diagnostic value. When angular deformity is present in even

slight degree, it should serve only to indicate that the pathological process in the vertebra has reached its ultimate form. That the earlier clinical phenomena of the disease should be lost sight of, in contemplation of this more prominent event, should be expected, in view of the fact that the teachings of three-fourths of the text-books on surgery make angular deformity the chief diagnostic sign of the disease.

Another matter of some importance touching upon this subject seems to be, that the symptomatology of the early stage of Pott's disease has been overdrawn, so that it represents a degree of irritation that really is seen only in the advanced stage. Reviewing the symptoms, as the writer has had occasion to observe them, in cases in which the diagnosis was made prior to the occurrence of angular deformity, their appearance in the early stage is greatly modified in severity as compared with what is present when even the slightest degree of angular deformity exists.

While a detailed account of the early symptomatology cannot be here given, it may be briefly stated that the clinical history in a number of cases of advanced Pott's disease will show that the neural and motor disturbances, exhibited in the early stage, by progressive development have become the symptoms of the stage of angular deformity. The osteitic cry, or night-pains; neuralgia of one or several of the spinal nerves which are in close relation to the affected vertebra; abdominal or thoracic pains; functional derangement of the respiratory, circulatory, or digestive organs, due to irritation of the sympathetic; paroxysms of painful spasm of the muscles of the trunk; rigidity of the muscles of the trunk and loss of spinal mobility, from voluntary and reflex muscular contraction; impairment of the powers of locomotion, etc.,—all will be found to exist in much more moderate degree in the early stage than is usually ascribed to that period of the disease. In another place[1] I have directed attention to the presence of spinal distortion in the early stage of Pott's disease. This sign is of universal occurrence in disease in the dorsal or lumbar vertebræ, and it may be relied on to confirm the evidence which the other symptoms furnish. Reflex muscular contraction is not a symptom of enough prominence in the early stage to attract attention readily, but such as may be present is concerned chiefly in the maintenance of the trunk in one or another of the distortive positions which are so commonly assumed by the patient. When the spine is in this position it is more easily immobilized by the muscles; at the same time the weight which the inflamed vertebra should sustain is so disposed as to fall not directly upon the bone, but more upon one side of the vertebral body and one articular process.

This attitude is suggested undoubtedly by the tenderness which the inflamed bone evinces to weight pressure and the ability to diminish this in part by immobilizing the spine in one of these positions. By adjusting the

[1] Annals of Surgery, July, 1889.

weight upon the vertebra in this manner, from an early period of the disease, there occurs a greater or less amount of distortive malposition of the trunk; and this acquires prominence in keeping with the irritation symptoms. In some cases it quickly attracts attention; in others, however, its presence is revealed only by careful inspection. The reflex contraction by which this malposition is maintained does not yield to extension force with greater readiness than occurs in analogous muscular contractions elsewhere in the body. During the employment of suspension extension—*e.g.*, when applying the plaster-of-Paris jacket—the distortion is not modified in any essential degree. This may be seen following the removal of the jacket and its examination separately from the patient; or, if a solid cast of the patient's figure is made by filling the jacket with plaster of Paris, the cast will show the distortion with especial clearness. This matter has been referred to somewhat in detail not only because of its diagnostic value, but also for the reason that the correction of the distortion is of importance in connection with the mode of treatment that should be employed in the early stage of the disease.

As regards the plan of treatment required for the early stage of Pott's disease in the different regions of the column, it may be sufficient to state that the method to be employed in cervical or high dorsal localization should differ in no essential manner from that which is required in the advanced stage of the disease. In these regions the enforcement of spinal fixation is attended by obstacles that are more difficult to surmount than in the lower part of the column, and a departure from, or variation, of any method which may have been originally selected is often necessitated. Thoroughness in attention to the details of treatment and perfect adaptation of the means to the end—viz., the maintenance of vertebral rest—are here demanded to accomplish the arrest of the disease in any of its stages. Naturally, by the employment of such measures in the early stage, not only should we succeed in preventing the development of angular deformity, but the time of treatment should be materially shortened as compared with what is necessary in the advanced stage of the disease. In addition the patient would be relieved of much of the tediousness and confinement which are inseparable from the treatment of this especial variety of Pott's disease.

With the site of the disease below the fifth dorsal vertebra the management of the disease becomes greatly facilitated. But with this modification of difficulty attending the treatment of the disease in this locality there is relatively an increased frequency of occurrence as compared with the higher varieties.

Regarding this more numerous class of cases of Pott's disease, is there any method of treatment which should be preferred in view of its especial adaptation to the requirements of the early stage? In the late stage of the disease the requisites of successful treatment may be summed up in one word, viz., fixation. Then we have to take cognizance of angular deformity

chiefly with the view of preventing its increase, not of effecting its removal. The various indications of treatment are fulfilled by the employment of measures directed to this end. In the late stage, following the arrest of the disease, the presence of more or less angular deformity must be regarded as inevitable. In the early stage of Pott's disease, however, the views regarding its treatment are widely different. By appropriate treatment the disease may be prevented from advancing to the stage of angular deformity. To accomplish this end fixation of the vertebræ is required, which should be as effective in quality as that employed in the late stage. Aside from this the removal of deformity which depends on the distortion is the matter for consideration. These two features in the plan of treatment should be carried out coincidently. The distortion may be said to be the deformity of the early stage; in this connection it is susceptible of correction by force properly applied to the contracted muscles. This may be regarded as subordinate in importance, compared with effecting the arrest of the disease. For various reasons, however, it is of consequence that the spinal curves should be made to resume their normal relations. 1st. The distortion is often present in a conspicuous degree, and it would remain, as a permanent alteration of the trunk, were attention given solely to the efforts to maintain fixation of the vertebra. 2d. When the spine is properly restrained it is better that the weight should be distributed over the whole area of the affected vertebra rather than to rest upon a portion of it; especially is this true when the spine is so supported that the articular surfaces of the affected vertebra would bear a large proportion of the weight resting upon it. 3d. The removal of distortion enables the column to have better functionating qualities following the subsidence of the vertebral lesion. The early stage is the only period in the development of the disease in which recovery may take place in a manner that may be called ideal,—*i.e.*, without deformity and with complete restoration of functional power in the spinal column. As, in the final result, deformity of this type is wholly unnecessary, the effort should be made to get rid of the distortion at the same time that the spine is being immobilized for the relief of the inflammatory symptoms. This is the more to be insisted on in view of the ease with which it may be done.

As regards the especial form of apparatus to be employed in this connection, the writer will confine his remarks chiefly to the appliance familiarly known as the spinal jacket. Treatment by this plan furnishes at once the means for effecting spinal fixation in a manner that is easier of application and more effectual in its action, and at the same time possessing fewer objectionable qualities, than any method in vogue. To carry out the idea of treatment that I have outlined with reference to the early stage, by means of the spinal jacket, the rule which is usually followed when making the plaster-of-Paris jacket must be changed in an important manner,—viz., the permanent jacket should not be moulded upon the patient's body, but upon a plaster-of-Paris cast from which the distortion has been removed by model-

ling. It was previously stated that the distortion in the early stage is only slightly influenced by suspension. It is evident, therefore, that a fixative spinal support like the plaster-of-Paris jacket, which conforms intimately to the shape of the body, will serve to maintain the distortion in an unchangeable position. The re-application of the plaster-of-Paris jacket at intervals does not materially modify the distortion. The same may be said of a jacket made of any other material which has received its shape by being moulded directly upon the patient's body. Whatever may be the explanation of the fact, one thing is certain,—viz., that the quality of such support does not effect sufficient relaxation of muscular contraction to permit of further correction of the distortion by subsequent applications of the jacket. In the experience of the writer the use of plaster-of-Paris jackets in the early stage of Pott's disease has not produced ideal results such as have been obtained by other means. This statement refers to the persistence of the deformity following the arrest of the disease, and also to the greater length of time required for treatment. Other disadvantages pertaining to the use of the plaster-of-Paris jacket need not be mentioned, except to refer to its frequent re-application, which this method of treatment necessitates. For this reason patients can with difficulty be persuaded to submit to this course of treatment for the space of time that it is necessary to employ restraint; they become discouraged by the repetition of the process and, as a rule, become indifferent and discontinue the use of the jacket long before it is safe to discard support. Usually it is not until the disease again shows signs of activity that the effort to restrain its progress is renewed, and it is generally the exception when there is a return to this especial mode of treatment.

For these reasons the writer has discarded the use of the plaster-of-Paris jacket, as it is ordinarily applied, in the treatment of Pott's disease in its early stage. In its place a jacket is used which is made of perforated belting leather, formed upon a corrected plaster-of-Paris cast of the patient's body. To make the cast, a temporary plaster-of-Paris jacket is first applied to the patient; this is removed as soon as it has set, and filled with plaster of Paris of the proper consistency for making a hard solid cast. The jacket is then stripped off, and the cast subjected to a process of modelling, with the view of giving it the shape which the trunk would have were the spinal column in the normal position. Briefly, the distortion in the cast is removed by cutting away the prominences, and building out with plaster of Paris the corresponding depressions, which occur as the result of the twisting movement which the column has undergone. When these changes have been rectified throughout the circumference of the cast, the torso will correspond with the normal form of the patient. A piece of leather of the proper size and firmness is then soaked in warm water and wrapped around the cast, and forced down upon it by winding tightly around it a strong rope, the successive strands of which are placed close to one another, and hammered firmly until the leather touches the cast. For convenience

of winding the rope upon the leather when forming the jacket, the cast may be placed in a frame, a strong stick having been passed through the cast at the time it was made, by means of which it can be turned in the frame in the manner of a windlass. The rope having been removed, the leather while wet is perforated upon the cast with a No. 12 punch. The cast with the jacket fastened upon it may then be placed in the sun or over a heater to dry.

The details of this process have been previously published by the writer,[1] so that it is unnecessary to repeat them at greater length in this connection.

The leather jacket is not at first a perfect fit for the distorted body. It is fastened upon the patient, by means of straps, while he is in the recumbent position. Following its adjustment in this manner, the patient is directed to maintain the recumbent position for two or three days. It will then be possible to tighten the jacket a little further without causing discomfort. When the patient resumes the upright position, it will be seen that the distorted trunk has adapted itself quite perfectly to the jacket. Many times I have seen the distortion disappear entirely in a week or ten days following the first application of the jacket; in other cases the restoration to the normal position would occur slowly, depending on the degree of intensity of the irritation phenomena and the extent of duration of the disease.

A gradual relaxation of the reflex muscular contraction is suggested by this alteration in the shape of the trunk under the combined influence of recumbency and the restraint exerted by the jacket. By placing the distorted trunk into a straight jacket in this manner we are able to make the body fit the jacket, so that, almost from the first, it is maintained in a state of fixation in a normal position. This correction of malposition is not permanent during the first two or three months following the application of the jacket. That is to say, when the jacket is removed for purposes of examination, etc., the distortion gradually returns if the patient is allowed to stand for a short time with the spine unsupported. This tendency of the distortion to recur on removal of the jacket gradually diminishes, however, as the patient continues to wear it for a longer period of time, until finally the erect position can be maintained without an unusual effort. Long before this time, however, the symptoms of irritation will have diminished or disappeared, showing that the jacket is an efficient appliance for maintaining vertebral fixation. Furthermore, the fixation afforded in this manner is of a uniform quality, attention being given daily to the degree of tightness with which the jacket is worn. Patients themselves show a disposition to wear the jacket strapped as tightly as possible, experiencing thereby more relief of irritation, and, as a rule, making more satisfactory improvement.

Following a period of restraint of this character ranging from eighteen

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[1] Annals of Surgery, July, 1889.

months to two years, patients are able to lay aside the jacket without manifesting any of the signs of the disease. As a matter of precaution the support which the jacket affords is carefully taken away from the spine, permitting the resumption of functional work in a gradual manner.

A jacket made upon a corrected cast may be constructed of other material than leather,—*e.g.*, a permanent plaster-of-Paris jacket may be formed upon it, as suggested by Dr. Lovett;[1] wood bandage, paper, etc., may also be used for this purpose. It is the principle in the construction of the jacket that is of chief importance, not the material of which it is made, provided, of course, that it possesses the strength to withstand the weight it should sustain. The use of leather for this purpose, by the writer, is a matter of individual choice, suggested by its workable properties and its durability and cleanliness while in use.

This plan of treatment has been in operation by the writer for about ten years. During that time I have had occasion to treat sixty-five patients with Pott's disease in whom the disease had not reached the stage of angular deformity when they were placed under my care. In all of these cases the disease was located between the fifth dorsal and the third lumbar vertebræ. Of this number in only three instances has the disease progressed and caused angular deformity. But even in these cases this event was not necessary, and was due largely to meddlesome interference with the plan of treatment. In two cases death occurred from extension of tubercular infection while the patients were under treatment for the spinal lesion, pulmonary tuberculosis and cerebral meningitis, respectively, being the cause of death. Psoas abscess occurred in one case. Paraplegia of a mild type and of short duration occurred in three instances. The ages of the patients ranged from four to forty years, and the proportion of cases occurring among females was somewhat in excess of the number in males,—viz., thirty-eight of the former to twenty-seven of the latter. The disproportion in the number of these cases in which the disease occurred in the earlier years of life as compared with those who had reached adolescence and adult life was very marked,—*e.g.*, there were two cases aged three and four years respectively; between six and twelve years there were fourteen cases; there were sixteen cases between the ages of thirteen and nineteen years; while from twenty to forty years of age there were thirty-three cases. In early life the more rapid development of the disease, as compared with its rate of progress in the adult, accounts in a measure for the relative infrequency with which the disease in its early stage is seen in childhood. In the adolescent and adult patient the duration of the early stage was frequently estimated to have been twelve and eighteen months. In this class it is the slow rate with which the disease generally acquires its more characteristic features that affords such excellent opportunities for its early recognition.

Recumbency as a method of treatment in the early stage of the disease

[1] Transactions of the American Orthopædic Association, vol. iii. p. 159.

demands attention in this connection, for the reason that if properly carried out it meets all the indications for treatment. By this plan the maintenance of spinal rest may be secured in a high degree of perfection, owing to the removal of the entire weight from the vertebræ. Dorsal decubitus strictly maintained will cause the distortion to disappear in the course of a few weeks. To accomplish this, however, the patient should lie upon a recumbency frame and be restrained from turning and twisting by a broad girdle passing around both the trunk and the frame; in addition, traction may be applied to both head and feet. To attempt its use in an imperfect manner is of little benefit, and to employ it as an exclusive method of treatment during the time that spinal rest is indicated is impracticable, and often detrimental to the general health of the patient. It is a useful and often necessary adjuvant in connection with other methods of treatment, and as such should find its chief employment. A good plan when the plaster-of-Paris jacket is to be used in a case of early Pott's disease is, first, to subject the patient to a course of recumbency treatment of four or five weeks' duration. This will cause the distortion to disappear; the spine will then be in a straight position during the act of suspension and the application of the plaster-of-Paris jacket. A jacket so applied should be cut open in front and be provided with lacings, to guard against any loosening that may ensue after it has been worn for a short time.

With our present knowledge the hope of diminishing the disastrous consequences of Pott's disease lies chiefly in the direction of early diagnosis and prompt treatment. If the efforts to better this branch of our knowledge were commensurate with the energy that is expended in the attempts to relieve patients from the serious consequences that attend the advanced stage of the disease, the course of events might be reversed. It might then be as much the exception to see this disease in its advanced stage as it is now the exception to have the opportunity to treat it in its earlier stage. Especially should the effort be made to anticipate the occurrence of angular deformity in children. The frequency of the disease at that period of life and the rapidity with which it reaches an advanced stage of development, and also the readiness with which the disease will yield to treatment, are only a few of the reasons that can be adduced in this connection. Even with our present means, it is not impossible that more could be done to lessen the disastrous consequences of the disease. Much undoubtedly could be accomplished simply by the exercise of greater care and discrimination by physicians when examining patients whose symptoms give rise to a suspicion of this disease. Under such circumstances, if they would be distrustful rather than over-confident that the spine is not implicated, the error of overlooking the early stage of the disease would occur with less frequency. There is a large opportunity also for missionary work of a valuable character, among the poorer classes, with the view of diminishing the evils which attend the delay in beginning treatment in these very common forms of tuberculous disease. With a little instruction this work could be effec-

tively done by those who labor systematically among the poor,—*e.g.*, the city missionary, the district nurse, instructors in free kindergartens, matrons of day-nurseries, etc. The opportunity to recognize the beginnings of disease of this type would often be afforded these persons long before the parents of such patients would think it necessary to take the child to a dispensary or elsewhere for assistance. Touching the treatment which this class of patients demands, there are no wants which are not easily accessible to all. Their chief want is the knowledge to understand the importance of giving such cases proper treatment at the earliest possible moment.

THE TREATMENT OF NASO-PHARYNGEAL DISEASES AND THEIR AURAL SEQUENCES.

BY H. N. SPENCER, A.M., M.D.,

Professor of Diseases of the Ear in the Missouri Medical College and in the St. Louis Post-Graduate School of Medicine.

No examination of the ear is complete which does not include an examination of the naso-pharynx. It is not necessary that there should be subjective symptoms, prominent or otherwise, to suggest this inquiry; the cavity should be explored, and the aural surgeon who is the most adept in making such investigation and who has thoroughly familiarized himself with this space in health and in disease, will be the most competent to locate the origin of the greater number of aural affections and will be the best able to treat them.

Before proceeding to a study of the diseases which affect the retro-nasal space it may be well to present briefly the means of examination and the instruments which will be required for the treatment of disease in this locality.

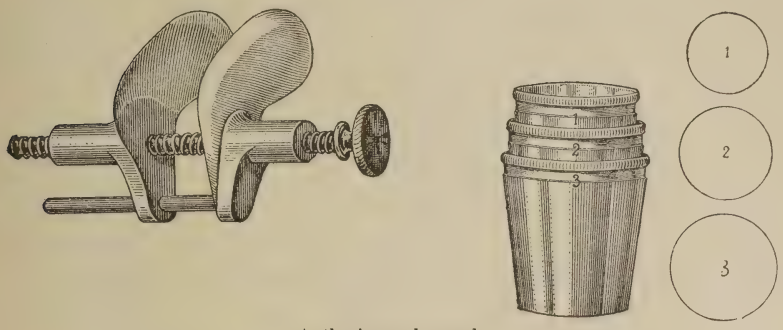
It might be sufficient to refer for this information to any one of the many text-books on diseases of the nose but for the feeling that methods and instruments which are peculiar to individual workers possess a value as presenting a possibility of their being useful to others. It will at least afford a stimulus to study and an increased list from which to select an armamentarium. The best illumination is effected by light which is reflected from a mirror worn upon the forehead, and the examination should be made by the anterior and the posterior method, called *anterior* rhinoscopy and *posterior* rhinoscopy.

NASAL SPECULA.

For anterior rhinoscopy a suitable speculum is necessary. A great variety of them will be found described in the literature of the subject; many of them of interest only as they belong to the history of rhinology.

There are objections to both Fränkel's and Thudichum's, which are in general use; to the former on account of its fenestrated blades, which permit the vibrissæ in the vestibule to obstruct the view, and to the latter because of the elastic wire connecting the blades, which does not permit of their separation being regulated and which occasions much discomfort.

Fig. 1.



Author's nasal specula.

I have employed for twenty years a modification of the aural speculum, described by me in 1879 in an article on the "Mechanics of Naso-Pharyngeal Practice."[1] It is made of hard rubber or aluminum (the latter is much to be preferred), is very light, self-retaining, and with different sizes can be made to accomplish any desirable dilatation and be suited to any age.

For operative purposes I have devised an instrument, a cut of which appears above. Two blades are made to travel on a right- and left-thread screw. One-half the length of the screw has a right-hand and the other a left-hand thread. There are twenty-four threads to the inch and pitched in opposite directions; it is evident that every complete revolution of the screw will separate the blades one-twelfth of an inch. If a more rapid separation of the blades should be desired, a screw of greater pitch would effect it. The blades are so adjusted on the screw that they will come together where the right- and left-hand threads meet. This relative position is constantly maintained by means of the small guide-rod that appears in the cut running parallel with the screw. One end of the guide-rod is made fast in the lug of the blade near the knob-end of the screw, the other end travels freely through the lug of the opposite blade.

The mould of the outer aspect of the blades, slightly flaring at the extremity, makes the instrument self-retaining. The instrument when in position rests upon the upper lip.

It is scarcely necessary to remark that anterior rhinoscopy does not yield a satisfactory view of the naso-pharyngeal space except in part in collapse of the inferior turbinated body and in atrophic rhinitis (ozæna). Anterior rhinoscopy reveals more, however, of post-nasal conditions, under the most

[1] St. Louis Courier of Medicine, July, 1879.

unfavorable circumstances, than is shown of cavities that are not directly exposed in other speculum examinations. Familiarity with what is brought into view in an anterior rhinoscopic examination is of further importance as exposing the channel through which treatment of the retro-nasal space must often be directed.

POSTERIOR RHINOSCOPY.

For posterior rhinoscopy besides the reflector it will be necessary to have a rhinal mirror. This should be smaller than the laryngeal mirror, and should be set at such an angle to the stem (105°) as conforms it to the shape of the floor of the mouth.

In my experience, a tongue depressor renders this examination easier, and a firm stem to the mirror cannot be made to take the place of it. In introducing the mirror, care should be taken to avoid touching the tongue, palate, or posterior wall of the pharynx. The operator needs to be self-confident and to be possessed of the confidence of the patient.

PALPATION.

A digital examination of the naso-pharyngeal space is indispensable in many cases where inspection of the parts, especially in children, is denied or is unsatisfactory. The observer of necessity must be familiar with the position and tactile sensation of the parts.

PROBE.

A probe and cotton-holder are in constant requisition. The latter should be made of steel, with an octagonal handle and an inflexible shank both larger and heavier than that used in aural practice. In most instances the cotton-holder will answer for a probe, the point being guarded with cotton.

ATOMIZERS.

For cleansing the naso-pharyngeal space the douche atomizer affords the safest means, and in conjunction with the cotton-holder to loosen inspissated masses is the most efficient.

For a post-nasal spray, the writer devised, some years ago, a tip of greater length than the one in common use, and having an antero-posterior diameter sufficient to raise the velum from the posterior wall of the pharynx.[1] The advantage of this it is believed will be at once apparent. I have had Messrs. Ellis and Goltermann, New York, to manufacture for me a douche atomizer. This instrument can be used as a continuous flow nasal douche or may be converted into an atomizer.

It leaves nothing to be desired, in my estimation, in the way of an instrument for the purpose for which it is designed.

The stream should be directed towards the outer wall and the floor of the nares. In other words, care should be taken not to project the stream

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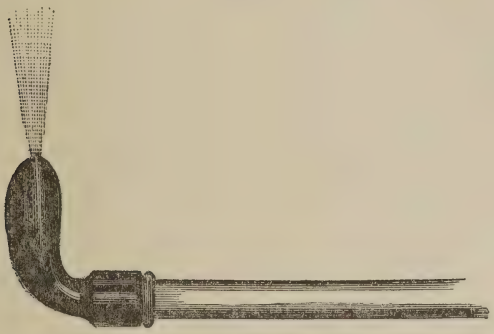
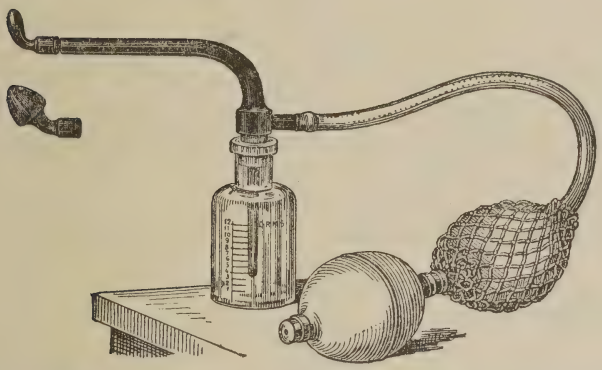
[1] Ibid.

FIG. 2.



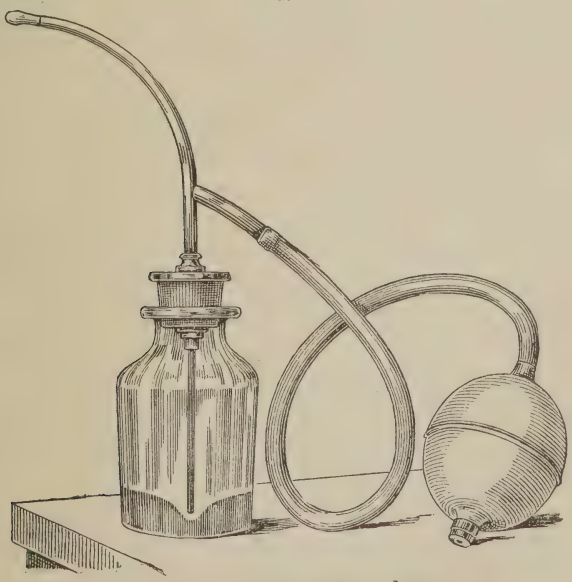
Author's post-nasal tip to hard-rubber atomizer.

FIG. 3.



Hard-rubber atomizer with post-nasal tip and anterior nasal tip of Lefferts (interchangeable).

FIG. 4.



R. S. Miller's cocaine spray-producer.

above the middle turbinated or against the septum. Too great force of stream, misdirected, might give rise to epistaxis and increased irritation on the one hand, or severe frontal pain on the other.

Aqueous solutions atomized by compressed air, according to my experience, are not efficient. For cleansing either the nasal chambers or the naso-pharyngeal space, the spray-tubes are practically worthless. After the cavities have been properly cleansed they are of very great value for making application of oleaginous solutions.

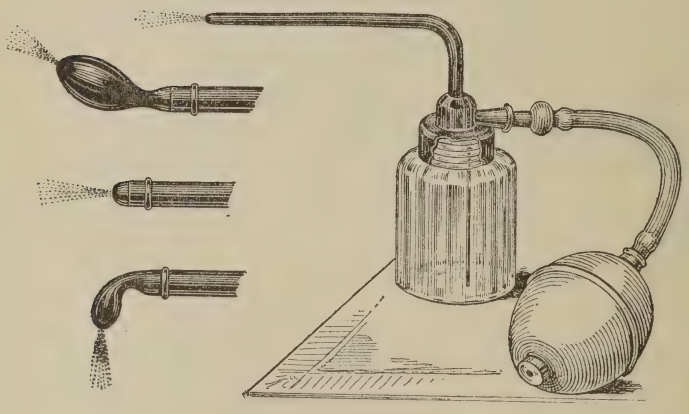
I think, however, even here a simpler device will be found more convenient and just as efficient. Something may be lost in the *moral effect*, but always where you make this sacrifice there is a gain in self-esteem.

I use for the atomization of oils an atomizer known as R. S. Miller's cocaine spray-producer, made by Mayer & Meltzer, London. The tubes are of silver.

INSUFFLATORS.

For the application of powders there have been many devices. Of these Bryant's auto-insufflator and the instrument accredited to Dr. Andrew Smith appear to be the simplest and best. The India-rubber stopper of

FIG. 5.



Author's powder-blower.

Bryant's auto-insufflator.

the latter I have discarded and in place of it have adopted a screw cap.[1] This prevents the top from being blown off and renders the instrument lighter. It is fitted with a nozzle for the posterior nares.

POST-NASAL APPLICATOR.

For direct application to the posterior nares, a cotton-holder bent at a right angle three-fourths of an inch from its point is to be used. A dossil of cotton is preferable to the brush.

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[1] A Contribution to the Mechanics of Naso-Pharyngeal Practice. By H. N. Spencer, A.M., M.D. Transactions American Otological Society, vol. iii., 1884.

EAR INSTRUMENTS.

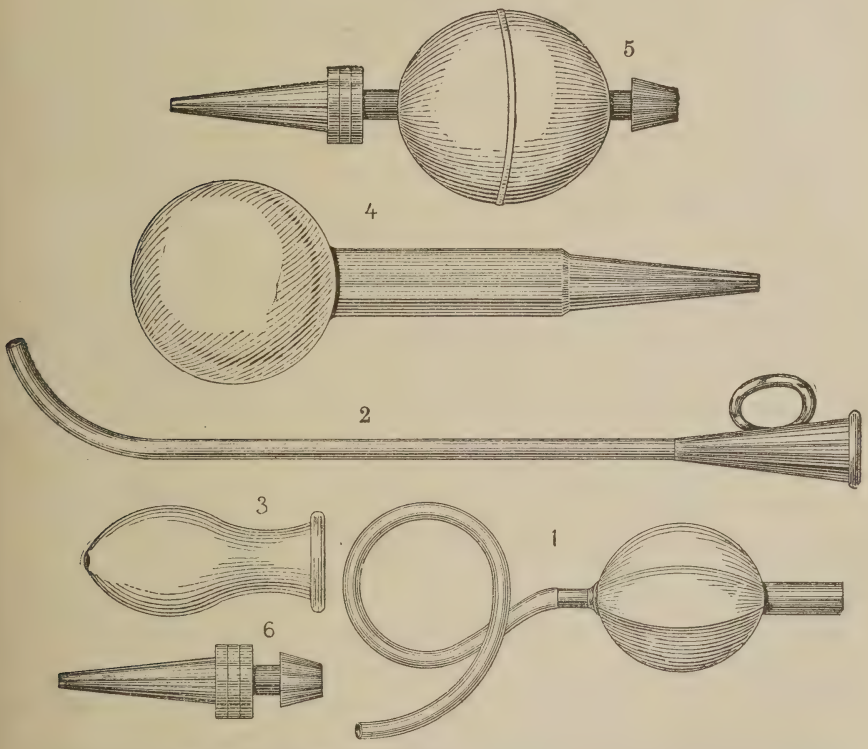
The ear instruments that will be required are an air-bag, Eustachian catheter, a catheter syringe, and a vaporizer. For an air-bag I would recommend that of Dr. Lennox Browne.

Catheters should be of silver, of a number of sizes and varying curves. A short catheter described by Dr. Edward Woakes, of London, Mr. Hodgson, of Brighton, and Dr. Weber-Liel, of Berlin, is incomparably best.

For treatment of the Eustachian tube by injection of fluid the catheter syringe should be constructed with a point to fit accurately into the proximal end of the catheter.

In the treatment of the ear by substances which volatilize easily, as acetic ether, ethylene dichloride, chloroform, or iodine, in order to spare the

FIG. 6.



1, Lennox Browne's air-bag; 2, Eustachian catheter; 3, nasal tip; 4, catheter syringe; 5, vaporizer; 6, point to air-bag.

patient the discomfort and even the more serious incidents which might arise from the employment of Buttle's inhaler and the Politzer inflation, I would recommend a vaporizer, a cut of which is herewith submitted.

By the former process not only the nasal mucous membrane but in unilateral disease the unaffected drum-cavity is needlessly subjected to the severe pressure and the medication which might entail serious consequences.

Finally, under this heading allow me to say that to have proper instruments is not more important than to possess the proper means of caring for them. An office is not complete which does not provide running water, hot and cold. There should also be a shallow vessel containing an antiseptic fluid for the immersion of instruments.

Diseases of the naso-pharyngeal space are a consequent condition upon rhinitis. According to my observation they do not exist as diseases *per se.*

I am aware that diseases of this space are frequently described as if they had an independent existence; but I believe this is only warranted because a peculiarity of structure and an importance of relation give peculiar significance to these affections, and, so to speak, individualize them.

We may class the diseases of this region as simple catarrhal, hypertrophic, and atrophic. It might be more proper to regard these as different stages of one disease. It is convenient to preserve the classification for therapeutic reasons and because of the varying liability to aural complications which characterize each. It may be well to state here that involvement of the Eustachian tube and inflammation of the middle ear are much more liable to occur in the outset of naso-pharyngitis. The later aural manifestations are more in the nature of recurrences of trouble associated with exacerbation in the nasal disorder, or are due to mechanical interference with physiological laws which regulate the operation of the auditory apparatus.

SIMPLE CATARRHAL RHINITIS.

The treatment of acute naso-pharyngitis we have considered in a previous lecture. This form of disease in its chronic state is characterized by a more or less profuse secretion of thick tenacious muco-pus. This coats the vault of the pharynx, and is difficult or impossible of expulsion by the hawking efforts which these patients are impelled to make. The anterior spray, or even the douche, does not effectually free the parts.

The post-nasal syringe, recommended by many writers on the subject, is less objectionable than the douche, but is open to condemnation upon the same ground of liability to cause aural trouble which has relegated the douche to obloquy and disuse. I have repeatedly been called to treat Eustachian salpingitis and otitis media which had been excited by its use at the patient's own hands, and in more than a single instance where the operator had been a physician. The best device, in my experience, is the posterior spray, or douche apparatus, to which reference has been made. Efficient cleansing by this method twice each day will make a marked impression for the better upon the diseased condition of the gland-tissue, while the comfort of the patient will be greatly enhanced.

The fluid used should be a solvent of mucus, and should have for its object the checking of cell proliferation. These indications are met in the employment of an alkaline solution to which carbolic acid may be added (one to two grains to the ounce), and in conjunction as required such astringents as alum, sulpho-carb. of zinc, or tannin.

The following formulæ are suggestive of combinations which may be used:

℞ Acid. carbolic., gr. viii;
Sodii biborat., ʒiss;
Sodii bicarb., ʒi;
Glycerin., ʒss;
Aquæ q. s. ad ʒiv.
M. ft. sol.
Sig.—Dilute one-half with hot water.

℞ Sodii bicarb.,
Sodii biborat., āā ʒii;
Sodii benzoat., gr. xv;
Eucalyptol., gr. v;
Ol. gaultheriæ, gtt. v;
Glycerin., ʒii;
Aquæ q. s. ad Oiss.
M. ft. sol.
Sig.—Dilute one-half with hot water.

℞ Tinc. iodini, ♏ xii;
Acid. tannici, gr. xxx;
Glycerin., ʒss;
Aquæ q. s. ad ʒiv.
M. ft. sol.
Sig.—To be used warm as a spray.

This may constitute the local treatment to be pursued by the patient at home. The spray should be used, as has been suggested, twice each day, morning and night. The patient is never reluctant to use it when the relief which it procures has once been experienced. Frequently it will be of advantage to use an oil application after the spray. This can be medicated, and thus be made to have a remedial value at the same time that it furnishes a bland covering to the inflamed membrane. It is of special value when used before retiring.

I am in the habit of prescribing it in the form of an ointment of the consistency of cream. This, taken up by means of a mop, should be snuffed through the nostrils so as to become diffused over the walls of the retro-nasal cavity, which the lying posture favors. A bit of cotton twisted about the point of a wooden toothpick, in the hands of the patient, is an improvised instrument for this purpose which is as good as any, and made each time has the advantage of cleanliness. Instruction should be given to avoid an excessive use of the remedy; otherwise, getting into the fauces, it is likely to cause some slight discomfort and might interfere with rest.

Such an ointment as one of the following may be used:

℞ Menthol., gr. x;
Ol. eucalypti, ʒi;
Albolene, ʒss;
Lanolin. ad ʒi.
M. ft. ung.

℞ Acid. carbolic., gtt. iv;
Menthol., gr. x;
Ol. eucalypti, ʒi–ii;
Lanolin., ʒii.
M. ft. ung.

℞ Ol. amygdalæ, ʒiiss;
Zinci oxidi, ʒv.
Rub to a smooth paste and add
Ung. hydrarg. nit., ʒv;
Ung. aquæ rosæ, ʒi;
Lanolin., ʒii.
Melt together and add when cool
Ol. rosæ, gtt. v.
M. ft. ung.
Sig.—Apply as directed.

Some more energetic treatment than the preceding will be required at the office. An application of nitrate of silver, compound tincture of iodine, or glycerite of tannic acid, in the order mentioned, will prove most beneficial.

These are best applied with a bent applicator to which a pledget of cotton has been securely attached. The instrument should be passed rapidly to the vault of the pharynx. This is not so simple an operation as might at first appear, and I feel warranted in detailing the means by which it may be best effected.

The tongue should be firmly depressed so that the posterior wall of the pharynx is brought into distinct view. The patient, with his head inclined a little forward, should then be instructed to breathe through his nose. At the moment that the opportunity is afforded, with a quick movement, the instrument is passed through the mouth and behind the uvula to *one side or the other*, and is carried to its destination.

Great care should be taken to avoid the prominence in the median line of the pharynx, caused by the protuberance on the anterior arch of the atlas, as contact with this foils the procedure, and the mortification of the operator is not the whole consequence.

The saturated cotton passed up in this way may be moved to one side or the other as desired, and be applied to any extent of surface. I have frequently found very great benefit from a single application of nitrate of silver in forty-grain solution. The application may be repeated according to indications at intervals of from two days to a week. A cure of this disease can only be effected by patient and persistent care.

Nasal Complications.—As I have already intimated, in my experience the aural complications are not always developed on account of contiguity from an inflammation of the naso-pharyngeal mucous membrane. I remark this, for I have frequently observed the worst cases dissociated from any ear involvement; and where ear-trouble has existed, it has not always been proportionate to the severity of the naso-pharyngeal disease. The naso-pharynx and the ear do not stand in the same reflex relation to each other

as do the ear and the structures of the nose anterior to this space, so that the diseases of the ear and of the retro-nasal space may be said to have a common origin in diseases of the nose, so far as local causes operate in the production of them. This leads me to state that this highway should be cleared and foci of disease removed, not only because of the unfavorable influence which is exerted upon other areas, but, as well, in order to afford an approach for the more efficient treatment of the post-nasal space and the ear.

It is not my purpose at present to consider the treatment of diseases of the nasal fossæ, except as this is necessary in order to treat efficiently the diseased conditions which we have under consideration. Obviously, interference with nasal respiration must seriously complicate, as it not infrequently causes, naso-pharyngeal disease and disease of the ear. The former might be occasioned when the nose no longer performs its office of moistening and warming air for respiration, and throws, through oral breathing, this burden upon tissues not constituted for it, thus irritating the mucous membrane of the posterior respiratory tract and exciting disease.

The disease of the middle ear might be a concomitant of nasal stenosis because of the interference which it exercises upon the ventilation of the tympanic cavity.

In deglutition with the nostrils closed the air is exhausted from the middle ear, and an irritation thus occasioned, constantly repeated, may lead to inflammation. The importance of the reflex relation which these parts sustain particularly to the ear must not be overlooked, and it may be illustrated by this evidence. In making galvano-cautery application to the middle turbinated it is not uncommon for the patient to exclaim, "I feel that in my ear," and I have often observed, following such an operation, that a suppurative inflammation of the tympanum has shown improvement which had previously resisted the most carefully directed efforts in the way of strictly local treatment. I think it must be a matter of common experience that furuncular inflammations and eczemas of the external auditory canal yield more readily when a coexisting naso-pharyngitis is properly cared for in conjunction with the care given to the ear-trouble. Nasal obstruction may also interfere with the introduction of the Eustachian catheter or other efficient means of treating the ear. According to my experience there is no more fruitful source of naso-pharyngeal and aural inflammation than resides in hypertrophic rhinitis. A thoughtful study of the physiological function of the inferior turbinated and the development of structures that we have here, to meet the wonderful requirements made upon this organ, should serve to settle the disputes as to the etiology of nasal disorders which have characterized the writings upon this subject for the past twenty-five years or more. In *Europe* as in America similar demands in excess of what can be naturally borne, imposed by whatever causes, residing in the individual or in his surroundings, will produce like results. For the sake of science quite enough has been written on the subject of the *nationality* of this disease. A turgescence of the inferior turbinated body associated with

chronic rhinitis strains until it breaks the dividing mark which separates the physiological from the pathological condition. Situated in the respiratory channel this enlargement leads to serious consequences: impeding respiration, retaining secretions, and exciting tinnitus and deafness. In order to distinguish between turgescence and hypertrophy, or to ascertain the true measure of the latter condition, an application to the mucous membrane of a four- or five-per cent. solution of cocaine may be made. The contracting effect of this drug upon the arterioles would cause a turgescence of the inferior turbinated body which might be mistaken for hypertrophy to disappear in a few seconds. In regard to treatment, I will repeat the advice which I gave you when we had the diseases of the nasal fossæ under special consideration. Let the indications for the use of the knife and the snare, especially in the region of the middle and superior turbinated bodies, be unmistakable. I was on the point of using the word "extreme" in place of "unmistakable." I am aware that this advice is not in fashion nowadays. I am discharging my duty, however, as a public teacher. Be conservative of tissue, especially of structures which have an organic function and stand in intimate relation to other areas of such great importance as the ear and the larynx. Exhaust first the resources of treatment which you have in menthol, Monsel's solution of iron, and chromic acid. Applications of iodine, iron, and chromic acid should be carefully limited to the hypertrophied areas, and the septum and floor of the nose should be spared the irritation which might be unnecessarily inflicted upon them. If more than this is required, the next safest procedure we shall find in the galvano-cautery.

Without a public electricity supply by far the most perfect battery for use in this operation, according to my experience, is the Edison-Lalande. I am indebted to Professor Barker, of the University of Pennsylvania, for my first knowledge of this instrument. Its superiority over others consists in its absolute reliability. I have employed one daily for six months at a time without recharging. It is furnished with a regulating rheostat, which is essential in the use of the battery. A white heat is to be guarded against as dangerous and never necessary. On the other hand, a black heat is insufficient and apt to be painful, as the instrument adheres to the tissues, and having to be torn away excites more or less hemorrhage. The point of the electrode should be brought to a cherry-red heat. The surface to be operated upon should be well anæsthetized with a *twenty-per cent.* solution of cocaine. I have never observed evil consequences, worth mentioning, to arise from the use of this strength of the solution. In rare instances there may be a slight faintness and a general malaise, lasting a variable but usually a very short time. The solution should be applied with a mop, the head being inclined slightly forward, and the patient be instructed not to draw the fluid back. If there should be, however, a slight escape of the fluid into the pharynx, it is only the matter of a bitter taste and a momentary peculiar feeling in the throat. The operation is thus rendered absolutely painless. I have never found it necessary to employ a guard further than that which

the speculum affords for the protection of the septum. An accident which might be serious, as leading to adhesion of the opposing surfaces, is best guarded against by confidence in a firm touch and an educated hand. The burner should not be ignited until in position, and the circuit should be broken when the operation is completed that it may be withdrawn cool. A linear cauterization fulfils all ordinary requirements. A number of sittings may be necessary to complete the operation. After the cauterization I am in the habit of applying the following ointment:

℞ Cocain. hydrochlor., gr. x;
Ol. eucalypti, ʒiss;
Liq. albolene, ʒii;
Lanolin. ad ʒii.—M.

Or

℞ Liq. atropinæ sulph. (gr. iv.–fʒi), ʒi;
Lanolin., ʒi.
M. ft. ung.

If this point has been reached without affording relief and there are symptoms which demand further means of treatment, you may consider the propriety of removing the offending mass. In operating for the removal of enlarged turbinateds, fortunately, so long as we confine ourselves to the inferior turbinated it does not matter a great deal what choice of procedure we make so that the end aimed at is attained, for we are dealing with structures the most tolerant of surgical interference; the bone itself, being independent, may be partially or wholly removed without any very serious consequences *beyond the loss of the organ.* Treatment of the middle turbinated, a process of the ethmoid, would require more circumspection. In my experience the cold snare is as efficient as the incandescent, is much the safer, and therefore a better instrument. For the removal of larger growths I consider Jarvis's snare the best. It is constructed with a screw, which admits of the loop being slowly tightened in order to seal the severed vessels. The details of the operation, with rules for the after-care of the parts, may be found fully set forth in treatises on diseases of the nose.

(To be continued.)

CLINICAL LECTURES.

HÆMOGLOBINURIA.

CLINICAL LECTURE DELIVERED AT THE HÔPITAL DE LA CHARITÉ.

BY PROFESSOR POTAIN,
Paris.

GENTLEMEN,—You have seen in bed No. 7 of the Bouillaud Ward a man who is suffering from the disease called hæmoglobinuria or hæmatinuria, a diseased condition rarely seen in France. The patient seems to have contracted the malady by constant exposure to cold and wet. Since he came into the hospital he has been continuously in a warm room, and has not had an attack until recently when he went out into the yard for half an hour, at which time he was taken at once with an attack, and you were all able to see him in one of his paroxsyms. It began with a shivering fit similar to those seen in intermittent fever, his teeth chattered, and his limbs trembled, while he complained of a terrible epigastric constriction and pain over the kidneys. The pulse was 84 and small, with increased tension. The temperature rose that evening to 104° F., while the respirations were frequent, painful, and labored. Liver-dulness extended some ten inches downward in the mammary line and six inches across towards the sternum. This condition continued for four hours, and he then returned to his normal state.

Your attention must have been attracted to the coloration of the urine that he passed during and after his attack. It was of a dark-red wine color, looking almost exactly like blood. Nitric acid produced an abundant precipitation of albumin. Under the microscope we could not find any red corpuscles in his urine nor any portions of them, and there were only a few pigment-granules and some white blood-corpuscles, so that it was not hæmaturia but hæmoglobinuria. The peculiar coloration of the urine disappeared in about four days, and during this time we found some indican. On examination of his blood, it was found very poor in red corpuscles, having only three million six hundred and eighty thousand per cubic millimetre. The patient, as you see, is very anæmic. The red urine, I repeat, was not due to hæmaturia, else we should have found at least some remains of the red corpuscles in it, and, besides, the real hæmaturic urine is ammoniacal, but this was not.

Hæmoglobinuria has been seen in blood-poisoning,—from ammonia,

for instance. Professor Hayem observed it once in the course of an acute case of articular rheumatism, but the cause is usually some exposure to cold and wet, or great fatigue, such as forced marches. This influence of cold on the affection has given it the name of "paroxysmal," but it is not a real paroxysm, because it is a new occurrence of the symptom from the same cause. It is very curious to notice that the degree of hæmoglobinuria is proportional to the amount of the cold the patient has been subjected to. Slight exposure to cold will sometimes produce such mild attacks that the patient will hardly notice them, and forced exercise will do the same thing if it is not too far prolonged. The persons who are subject to this disease very often give a history of some predisposing cause, such as syphilis. English physicians who see this malady in patients coming from the East Indian countries are apt to ascribe it to malaria. In France we have not had a similar experience, and soldiers returning from Algeria, although frequently sufferers from malaria, are not subject to hæmoglobinuria. It is possible that malaria and syphilis are only morbid associations that are sometimes found with this disease as they may be with any other, and they may not be real factors in the etiology. Specific medication with quinine and mercury has not improved cases that I have treated. In our present patient we have not been able to find any trace of either of these maladies, acquired or hereditary. He has had hepatic colic, and even now his skin is yellow. This coexistence of a bad state of the liver in such patients is very interesting from a pathological point of view, and I do not remember that attention has ever been called to it before.

How is hæmoglobinuria produced? Hæmoglobin is found in the urine, and yet there are no blood-corpuscles seen in the urine. Nevertheless, this hæmoglobin must come from the destruction of the red corpuscles. An indirect proof of this is found by an examination of the patient's blood before and after the attacks, and you have seen in this case that the number of the blood-corpuscles fell to one-half what they were before his last attack. Where does this destruction of the red corpuscles take place? Is it in the urine or in the tissues? It is not possible to believe that it takes place in the urine, where there is no particular element that is capable of destroying the corpuscles. His urine not being ammoniacal, we cannot believe that ammonia has been a cause acting on fermented urine, nor do we admit the action of oxalate of lime, which has been given by some writers as the cause. Nothing in the urine explains it. It is, then, in the blood itself that we must look for an explanation of the disease? In that case the blood-serum would be colored, as the hæmoglobin would pass into it, and this has been observed in certain cases; but such a change may be owing to an artificial coloration or due to some alteration of the blood-coagulum. Another hypothesis is that there is a destruction going on in the tissues themselves, that a spasm takes place by contraction of the peripheral vessels caused by the cutaneous exposure to cold; then, owing to this arrest of circulation in the skin, the blood is pushed back into the deep viscera, and the

destruction takes place there; this is supposed to be mostly in the kidneys, and hæmoglobinuria follows. If so, we must suppose some special vulnerability to alteration in the corpuscle itself, the pathology of which has been studied in cases of hæmoglobinuria occurring in animals. In Roumania, where this disease is common, Babes claims to have found in the red corpuscles of such animals a micro-organism that explains the etiology of the malady. This micro-organism has not been found in man, however.

The prognosis in this disease is not serious. In seventy cases only five deaths have been reported, and even these were not from the direct influence of the malady itself but from intercurrent affections, tuberculosis in particular. One patient reported by Robin died from pneumonia. A certain number of these people continue to have their attacks at longer or shorter periods, becoming less and less severe, so that ultimately they are almost cured; indeed, the complete cure of the disease has been recorded. Some English writers assert that hæmoglobinuria is the first symptom of the cirrhotic form of Bright's disease.

In the treatment the first and most important indication is to protect the patient from all chances of catching cold, send him to a warm climate in winter, and prevent him from undergoing any great fatigue. Hydropathy may be tried, to harden the patient to cold, but with great caution, by giving warm baths and douches at first and making them cooler by degrees. During an attack try to warm up the patient by every possible means. Perchloride of iron and gallic acid have not given me good results, but are highly recommended by some authors. When the blood is poor in quality iron and tonics should be tried. Milk diet is of the utmost importance, both during and after the attacks. In cases where syphilis and malaria exist, of course the usual remedies should be given to counteract these conditions.

THE TREATMENT OF DEFORMITIES AFTER PARALYSIS.

CLINICAL LECTURE DELIVERED AT THE NEW YORK POLYCLINIC.

BY V. P. GIBNEY, M.D.,

Professor of Orthopædic Surgery in the New York Polyclinic; Surgeon-in-Chief to the Hospital for the Ruptured and Crippled.

GENTLEMEN,—There is one branch of orthopædic surgery which is not only very interesting, but is also nearly on the border-line of neurology, so that it is often difficult to say whether more can be accomplished by the neurologist than by the orthopædic surgeon. We believe that if the muscles which are overtaxed and overstretched are relieved by tenotomy from the tension produced by opposing muscles, and the overstretched muscles placed in a position which will secure rest, the result will be much

better than if the muscles were simply stimulated without relieving the tension. For example, in "drop-wrist" due to lead-poisoning, we have been in the habit for many years of applying electricity to the posterior group of muscles and treating the symptoms of lead-poisoning, and have found that the reparative process under such circumstances is very slow. A few years ago, while in Liverpool, I saw the late Mr. Hugh Owen Thomas treating "drop-wrist" in what was to me a novel way. He cut out a piece of steel to fit the forearm and another to fit the hand, joined them by a steel bar, and then bent these metal splints so as to place the hand in an over-extended position, after which he bound them together with a bandage and plaster, and sealed the dressing with sealing-wax to insure its being left undisturbed. He told me that he was then in the habit of sending the patient home with instructions to return in the course of some weeks. He said that in this way he rarely, if ever, failed to find the case completely cured—the muscle being completely restored—in a period of a very few weeks, without recourse to any other treatment. Now, this is an illustration of what I propose to speak to you about to-day,—the relief of palsied muscles by placing them in an over-corrected position and securing rest.

In this connection I would refer to a case recently seen in the hospital. Last spring a boy ten or twelve years of age came to the out-patient department of the hospital with talipes equinus, the anterior group of muscles being completely palsied. There was a small cicatrix over the head of the tibia, which was said to be due to a wound he had received from a broken bottle. After this wound had healed the condition of "drop-foot" was noted. After an examination of the muscles, Dr. Sachs reported that there was a division of the nerve passing along the site of this injury, and he advised suturing of the nerve as the only means of improving the condition. The patient came to our hospital for operation, but, owing to an outbreak of diphtheria, he was not taken in at that time, and the operation was postponed for several weeks. On his admission, I made a long incision over the head of the fibula up to the popliteal space, but was unable to find the nerve, so I decided to simply place the foot at an acute angle and apply plaster of Paris well up on to the thigh. The plaster was left on four weeks, the wound healed by primary union, and, to our astonishment, on removing the dressing, we found there had been complete restoration of the muscular power over the foot. He was kept under observation for several weeks. Just before the time when I expected to discharge him, he suddenly developed a pneumonia and died.

I have had other cases of "drop-foot," which have been placed in a position of extreme flexion, so that the patients walked on their heels, and the results have been good. I wish, therefore, as an orthopædic measure to advocate division or suturing of the tendons of opposing muscles and then prolonged rest. It is on this theory that we apply apparatus for long periods to keep certain muscles at rest. Very often, in a palsied state of

the adductor muscles of the thigh, we apply apparatus which will secure rest to these muscles, and the simple effort of walking around is sufficient to stimulate the circulation. Neurologists are in the habit of electrifying muscles for a time and subsequently using massage, and after a certain time they find that the circulation has been decidedly improved, but this result does not improve the tone of the muscles. In crutch-paralysis, or in a palsy of the deltoid muscles from injury, recovery takes place, as a rule, but the question is how to accomplish this result most quickly and surely. We prefer to support the arm with a sling in a case of deltoid injury, and then use electrization of the muscles. I am sure that if you adopt this plan you will get good results.

This boy before us has spastic hemiplegia; the hamstrings are contractured. Many of you know that Dr. Sayre's definitions of the words "contraction" and "contracture" are different from those given in most text-books. He calls a permanent shortening a *contracture*, and a temporary shortening a *contraction;* most of the text-books reverse these terms. In this boy we have a contraction with a contracture. I do not lay much stress upon these distinctions; the important point is to decide when these muscles should be divided and stretched. If we desire to correct the deformity as quickly as possible, it is best to perform tenotomy, secure a correct position at once, and hold the parts in this position. After performing tenotomy of the tendo Achillis, you should put on adhesive plaster over the seat of operation, and apply the dressings in such a manner as to make pressure on the heel and on the calf. If the bandage is carelessly applied, it is apt to make pressure on the gap between the divided ends of the tendon, and hence to interfere with the healing process or with organization of the blood-clot. The malleoli, the instep, and other prominent points should be well padded with absorbent cotton, and a plaster bandage applied up to the calf, the patient to be kept in bed for two or three days; after which he may be allowed in a wheel-chair for a period of two or three weeks before the dressing is removed. You will then find at the site of operation a slender band which is fairly well organized, but which requires protection for some time longer. Accordingly, you should apply an apparatus which will keep the foot at a right angle for a few weeks more. This boy was three years old before he was able to sit up alone, though his mother tells us that he was delivered at full term without the use of instruments. He has a narrow preputial opening, but apparently no firm adhesions. He also is obstinately constipated. About twenty years ago Dr. Sayre read a paper on phimosis as a cause of spastic contraction, and reported a series of cases in support of this view. He said that nearly all these cases were due to this cause, in his opinion. Subsequently Mr. Barwell, of London, went so far as to say that many cases of hip-joint disease were due to congenital phimosis. Many medical men hold that all male children should be circumcised, but those who advocate this should read a certain editorial in the *Medical News*, of Philadelphia, in which it is said that a large number of

deaths have occurred in this city from the operation of circumcision, as performed by the rabbi.

In the case just presented there has been no intra-uterine meningitis or a meningitis occurring shortly after birth. These children are late in beginning to walk; their speech is imperfect; they are very emotional, and are easily frightened. When they begin to stand, they stand on the balls of the feet; in short, there is incoördination of the muscles. They are also always constipated.

Many years ago Professor Erb described this condition, which was first observed in adults, and called it a sclerosis of the lateral column of the spinal cord. But subsequent pathological study has shown that there are vacuoles or gaps in the cord, which are comparable to the common congenital defect known as hare-lip.

The neurologist does not like to treat these cases, and the surgeon does not much care to treat them either, but instrument-makers reap a large harvest from the parents. If you divide the adductors subcutaneously where there is adduction of the thigh, divide the contractured hamstrings and the tendo Achillis subcutaneously, at once over-correct the deformity, and apply a plaster-of-Paris dressing or a wire cuirass, so that the limbs are kept extended laterally for a number of months, you can in this way tire out these muscles and give the other muscles an opportunity to be called into action. It is harsh treatment, but I know of cases formerly absolutely helpless which have been very decidedly benefited by it.

Four weeks ago I divided the tendo Achillis in this second boy, and applied a plaster-of-Paris dressing. In poliomyelitis this spastic element is not present, and, if you are careful to divide the tendons and keep the parts in good position, muscles apparently hopelessly palsied often show marked improvement. The treatment does not, of course, restore any of the ganglionic cells in the anterior column of the cord, but there are always a few fibres which are not palsied, and certain associated muscles which are overstrained by malposition, and hence by this treatment we can secure very decided benefit. At present there are many children who have been so treated who are walking fairly well, and yet a few years ago they were well-nigh helpless. If the flexors of the thigh are contracted, as they often are, they can be divided subcutaneously, or, if this be difficult, a free incision may be made into the tensor vaginæ femoris, and the muscles pulled down by means of a weight and pulley. There is nothing so mortifying to a girl as to grow up with a "dangle-leg."

Poliomyelitis anterior acuta comes on suddenly at the time of dentition; it is an inflammation of the spinal cord which is at first general, but which soon localizes itself in the anterior column, and it depends altogether on the severity of the lesions, as to how many ganglionic cells are destroyed. Microscopical examination shows the cells atrophied and broken down.

SYMPTOMS AND TREATMENT OF THE DIFFERENT FORMS OF NEPHRITIS.

CLINICAL LECTURE DELIVERED AT THE UNIVERSITY OF VIRGINIA.

BY WILLIAM C. DABNEY, M.D.,

Professor of the Practice of Medicine in the University of Virginia, etc.

GENTLEMEN,—I wish to call your attention to-day to some points in connection with the symptomatology and treatment of the different forms of nephritis or Bright's disease. As you know, various classifications of nephritis have been made, but it seems to me that for practical purposes none are superior to the old-fashioned one which made four varieties,—acute parenchymatous, chronic parenchymatous, interstitial, which is practically always chronic, and amyloid kidney, which is, properly speaking, not inflammatory in character, but which I shall have occasion to allude to in trying to explain to you the symptoms in the different classes of cases.

Perhaps there are still many physicians, whose lives have been too much occupied for them to study as they would wish, who consider dropsy and albuminuria essential symptoms of all cases of nephritis or Bright's disease, and yet there is a large class of cases in which these symptoms are either entirely absent or present in such slight degree as to be scarcely noticeable.

Let us take dropsy, then, first of all, if you please, and see, if we can,—and I think it will be an easy matter,—why it is sometimes present and sometimes absent.

In order to understand this symptom, and also some of the others which I shall speak of later, it is important to have clear views as to the pathological changes which occur in the different forms of Bright's disease. In acute nephritis there is an exudate into the urinary tubules which blocks them up and increases very greatly the intra-tubular pressure; now, you remember that the amount of urine discharged depends upon the pressure in the blood-vessels of the glomeruli, but it is evident that the greater the pressure in the urinary tubules the less, relatively speaking, will be the pressure in the blood-vessels of the glomeruli; hence it follows that when the tubules are plugged with an exudate (*cast*) the amount of urine discharged will be diminished in greater or less degree, the degree of diminution being dependent on the vascular tension and the extent to which the tubules are plugged. It follows also that the less the quantity of water discharged the greater the dropsy. It is evident, then, from these facts why scanty urine and dropsy are common symptoms in acute parenchymatous nephritis. Now, let us take in the next place *chronic parenchymatous nephritis;* it is well known that dropsy occurs in the *earlier* stages of this form of disease unless it begins very gradually, when there may be no

dropsy or very little at any time. The pathological changes which occur in chronic parenchymatous nephritis readily explain this fact; there is of course an exudate of greater or less amount into the tubules, and they are plugged to some extent, but along with this another change is taking place which is of great importance,—namely, the intra-vascular tension becomes abnormally increased in consequence of the gradual thickening of the walls of the blood-vessels and the hypertrophy of the heart, and this increase in the blood-pressure is sufficient—sometimes more than sufficient—to overcome the increased pressure in the urinary tubules, so that the quantity of urine remains normal or may be even increased; and dropsy does not occur to any appreciable extent unless there should be an acute exacerbation of the nephritis, and the intra-tubular pressure is thereby greatly increased, or unless the heart's action becomes enfeebled and the blood-pressure lowered in that way.

In *chronic interstitial nephritis* dropsy is a rare symptom, because the increase in vascular tension consequent on the very great cardiac hypertrophy and thickening of the walls of the blood-vessels is out of all proportion to the increase in the intra-tubular pressure; the amount of urine is greatly increased, and dropsy consequently does not occur, or, if it does, it is a very late symptom, and is not due directly to the renal trouble, but to the cardiac failure which is so common in the late stages of chronic nephritis; and this explains why the dropsy occurring in these cases is first observed in the lower limbs and not in the face, as renal dropsy is.

Let us consider next the presence or absence of albumin in the urine. It is well known now that there are many cases of Bright's disease of the most serious character in which albuminuria is not observed. Remember, if you please, that for albumin to appear in the urine the *cells* lining the urinary tubules must be inadequate to perform their function. Now, in the *parenchymatous* forms of nephritis these cells are diseased, and it is just in these cases that albuminuria occurs; but in chronic *interstitial* nephritis no change, or but little change, occurs in the *cells* lining the tubules, but many of the tubules themselves are destroyed by the pressure of the new-formed connective tissue around them. Hence there is no albumin in the urine, because the cells which are left in the kidneys are sound. But the *number* of sound cells is greatly diminished by the destruction of the tubules, and hence waste matters are not eliminated in proper quantity by the kidneys, and accumulate in the blood, causing various other symptoms, of which I shall speak a little later.

There is another symptom connected with the skin which is often very suggestive of chronic parenchymatous nephritis,—that is, a change of color so marked in some cases that it reminds one of Addison's disease. I saw some time ago a lady about thirty years old who consulted me for obstinate nausea and indigestion. It was quite constant, and she said she had much headache and giddiness besides; but the feature which struck me most forcibly was the singularly dark color of the skin. An examination of the

urine showed a large amount of albumin and a marked deficiency in the quantity of urinary solids. She was at once placed on a milk diet, and was given saline purgatives, and subsequently lithia water, with relief to the symptoms except the color of the skin, which has remained the same. As I said a moment ago, this singularly dark color of the skin is not present in acute nephritis, nor in any case, in fact, in which dropsy is a marked symptom,—then the skin is usually very pale,—nor have I observed the dark skin in chronic interstitial nephritis.

Yet another cutaneous symptom which is sometimes present is sweating, sometimes localized in extent and very annoying. This seems to be especially apt to occur in chronic interstitial nephritis. A few years ago I had under my care a well-known member of our own profession who was suffering from chronic interstitial Bright's disease. His urine was abundant and of low specific gravity; it contained no albumin, but a few hyaline casts. His heart was greatly hypertrophied and his pulse full and strong. He had, too, frequent attacks of nausea and headache, but the most striking feature of the case was the profuse sweating of his forehead and bald head. This sweating was not constant, but the attacks were very frequent.

Among the most troublesome symptoms of interstitial nephritis, however, are the headache and digestive disturbances, and I am anxious to call your attention to these especially, because they are usually promptly relieved—in great measure, at least—by appropriate treatment. The following cases will illustrate this.

A gentleman, seventy-one years old, who had long been a sufferer from gout consulted me for painful and frequent urination. The urine was very copious in amount; its specific gravity was 1008, and it was very acid,—uric acid crystals in large numbers being found on microscopic examination; it contained no albumin, but a few hyaline casts and pus-cells. In addition to the urinary symptoms he had frequent and severe headache and frequent attacks of vomiting; his bowels were usually constipated, or rather there was a tendency to constipation, but now and then there were sharp attacks of diarrhœa, which were followed by temporary relief to the headache. His face was nearly always flushed,—often almost scarlet in color. His heart was enlarged and his pulse full and strong. He was given citrate of lithia to correct the acidity of the urine, and small doses of morphia and atropia with oxalate of conium to relieve the headache and gastric disturbance; relief was very prompt from one-tenth of a grain of morphia only, and I would earnestly advise you to try this drug in these cases. I have time and again seen prompt and active relief from doses of one-tenth or even one-fifteenth of a grain of morphia every three or four hours for a day or two; nor does it seem to cause constipation, and so far from causing nausea it relieves it; of course the agent is not curative in its action, but it gives great relief, and I think can be continued at intervals for an indefinite term without increasing the dose.

Sometimes nitro-glycerin can be used with great benefit, especially

when the amount of urine discharged is excessive. Only last evening I gave the one-hundredth of a grain of nitro-glycerin to a patient who had been getting up four or five times a night to empty his bladder of large quantities of pale urine. He tells me this morning that he was up but twice during the night, but he suffered from increased headache in consequence of taking the nitro-glycerin. His face is always much flushed, and nitro-glycerin should be avoided in these cases if possible.

There is but one other point to which I will call your attention to-day, and that is the unreliability of the pulse as an evidence of strength in many of these cases; it often feels full and strong even when death is close at hand, and I would beg you to think well before giving purgatives of an active character or other depressing remedies in such cases. I remember a case which I saw some years ago of an elderly gentleman who was suffering from interstitial nephritis. His pulse was so strong that at the suggestion of a friend he took a large dose of Carlsbad salts, which brought on prostration from which he never rallied, and death occurred in a few days.

Let me summarize in conclusion the points which I have tried to bring to your attention in this lecture.

1. Dropsy is not present in all cases of Bright's disease or nephritis; it occurs *almost invariably* in the *acute* parenchymatous form, is *usually* present in greater or less degree in the *chronic* parenchymatous form, but is very rarely present to any appreciable degree in the chronic interstitial form.

2. Albuminuria is present to a greater or less degree in all cases of parenchymatous nephritis, but is absent, as a rule, in cases of interstitial nephritis.

3. The amount of urine is usually greatly diminished in the *acute* parenchymatous form, because the pressure of the exudate in the urinary tubules approaches the pressure of the blood in the blood-vessels. The amount of urine is often normal or excessive in *chronic* parenchymatous nephritis, because the blood-pressure is greatly increased by the cardiac hypertrophy and the thickening of the walls of the vessels, and hence it counteracts the increased pressure in the tubules from the exudate in them.

The amount of urine in *chronic interstitial* nephritis is nearly always increased in consequence of the cardiac hypertrophy and thickening of the walls of the blood-vessels, unless the heart power is flagging.

4. The *urinary solids* are diminished to a greater or less degree in *all* forms of nephritis; in the parenchymatous forms, because the excretory cells lining the tubules are destroyed, and in the interstitial form, because many of the tubules themselves are destroyed by the contraction of the new-formed connective tissue.

5. The *color of the skin* in *chronic* parenchymatous nephritis is often very dark.

Sweating, especially about the head and face, is sometimes a striking symptom in chronic interstitial nephritis.

6. For the headache and digestive disturbances which are so common

in chronic interstitial nephritis, morphia and atropia in small doses are exceedingly useful. Nitro-glycerin is useful to check the excessive flow of urine, but is apt to increase the headache when it is present.

TUMOR OF THE CEREBELLUM.

CLINICAL LECTURE DELIVERED AT THE ARAPAHOE COUNTY HOSPITAL.

BY J. T. ESKRIDGE, M.D.,

Denver, Colorado,

Professor of Mental and Nervous Diseases and Medical Jurisprudence in the University of Colorado; Neurologist to the Arapahoe County, the St. Luke's, and the Deaconesses Home Hospitals.

GENTLEMEN,—The patient before you, Walter S., male, aged eleven years, was admitted to the hospital on the 13th of January. His history, owing to the youth of the patient and the ignorance as well as the indifference of his parents, is rather meagre and unsatisfactory. The boy was born of dissolute parents and has been reared amidst crime and drunkenness. His father is a drunkard, and was a drunkard for a number of years antedating the birth of this child. During his bouts he is much given to "wife-beating," for which he is often confined to jail. The mother presents the appearance of one addicted to the free use of alcohol. Excepting alcoholism I can find no history of nervous affections in the family. Tuberculosis is also denied. It is probable that the parents are syphilitic. The boy is bright, and answers questions rather intelligently for one of his age and station in life. He is fairly well nourished. He states that he was always well until August of 1891, when he had an attack of typhoid fever. Near the end of his convalescence in September he was struck on the forehead by a boy with a piece of iron. Immediately after the blow he began to feel dizzy, and this symptom has continued until the present time. In October he began to complain of headache and occasional vomiting. The headache has been mostly frontal, but is at times complained of in the temporal regions, more in the right than in the left. The mother says that his dizziness has occasionally been attended with fainting spells, during which he turns pale and lies on his face for a few minutes, but does not become convulsed. As yet there seems to have been no convulsion. The principal symptoms complained of at present are great difficulty in walking without assistance, pain in the front and temporal portions of the head, failing vision, vomiting, and vertigo. The attacks of vomiting do not seem to be connected with any disorder of the stomach, and may come on either with or without a feeling of dizziness; they are, however, usually provoked by efforts at standing or by changing his position from the recumbent to the sitting pos-

ture. The result of his examination the day after his admission into the hospital was as follows:

His gate is uncertain and staggering, like that of a drunken person, and to carry the simile of drunkenness further he walks with his feet widely separated and bends his body forward. He walks almost as well with his eyes closed as when they are open, but his vision is greatly impaired, and it is impossible to estimate the extent to which loss of sight interferes with his gait. He is unable to walk backward, as the first step in that direction causes him to lose his balance and fall backward. He has great difficulty in standing erect, on account of the tendency to fall backward. He is unable to stand with feet placed side by side, or on either foot. The attempt causes him to fall backward. When he sits or lies the legs are moved well in all directions without provoking ataxic symptoms. There is no paresis or paralysis of any of the muscles of the extremities, although muscular power is rather poor. Reflexes: patellar, R. slightly lessened, L. nearly normal. Tendo Achillis, absent. Plantar, R. slightly lessened, L. nearly normal. Cremaster, exaggerated. Abdominal, absent. Arm, nearly normal. Iritic, scarcely perceptible. Dyn., R. 30, L. 43. Tactile, pain, temperature, pressure, and muscular senses, present and normal throughout the body. Taste and smell are normal. Hearing: R. much impaired, both for the watch and tuning-fork; L. nearly normal. Eyes: R. vision, counts fingers at three feet. All the fields are very much contracted. Disk choked, and swollen so that plus four dioptrics are necessary to get a good view of the centre of the disk. The veins are enlarged and tortuous; the arteries are small. The edges of the papilla are entirely obscured. Accommodation is nearly lost. L. vision, $\frac{20}{40}$. The fields are all contracted. The disk is considerably swollen, but not to as great an extent as that of the right eye, three plus dioptrics being sufficient to give a good view of the centre. The edges of the papilla are obscured, the veins enlarged and tortuous, and the arteries small. There is only slight effort at accommodation. Movements of both eyes are limited to the right. All the other extra-ocular muscles act nearly normally. The muscles of the lower right side of the face seem to be slightly paretic. The tongue is protruded in the median line. There is a tendency to ptosis of the left eye when he is sitting quietly, although he can raise the left upper eyelid as far as the right when he is asked to open his eyes. His mental condition is good. His temperature is normal; pulse slow, from 65 to 75; respirations regular.

He has been in the hospital between two and three weeks since the examination, and we find his condition worse to-day than at the time of his admission. His right eye is now totally blind, and he can scarcely distinguish an object with the left. He seems to be deaf in the right ear, and hearing is much impaired in the left. Curiously enough, the paresis of the right lower side of the face has nearly passed away, and he can now move the eyes further to the right than he could two weeks ago. General motility and the various sensory functions are still unaffected. Vertigo, vomiting,

headache, and almost total loss of vision are still the principal symptoms of which he complains. His appetite is poor, he is getting weak, and is becoming somewhat apathetic, but his intelligence is otherwise uninvolved. I will ask him to get out of bed and walk before you, so that you may see his peculiar gait. [He arose, but immediately turned pale and fainted. He was put in the horizontal position, where he remained unconscious for a short time. Afterwards he was troubled with vertigo, nausea, and vomiting, so that no further attempts were made to get him to walk.]

Now, gentlemen, in accordance with my usual methods of studying these cases with you, I will ask you to follow me in endeavoring to make a diagnosis by exclusion. The cerebral symptoms, such as vertigo, headache, and double choked disk, are so prominent that we can, without hesitation, locate the lesion in the brain.

The most important affections of the brain for us to consider in arriving at a diagnosis in the present case are meningitis; vascular disturbances, such as hemorrhage, embolism, and thrombosis; abscess; and tumor. Headache, nausea, vomiting, vertigo, and blindness might all result from meningitis. That the trouble was preceded by a blow on the front of the head would tend to support the view of meningitis. But against this diagnosis we have vertigo preceding headache for nearly a month, normal temperature, and double and acutely developed choked disk, the latter coming on about three months after his trouble was first observed. On the presence of double choked disk and the time of its development alone in this case, I believe we are justified in excluding meningitis. I have never seen a case of chronic or subacute meningitis in which double choked disk has developed. The gradual onset and increase of all the symptoms in the case, with the absence of distinct unilateral symptoms, such as paresis or paralysis, sensory disturbances, and the presence of double choked disk, justify us in excluding any vascular lesion as the cause of our little patient's suffering.

Can we exclude abscess? This, unfortunately, is not a rare affection of the brain. Its most common causes are disease of the middle ear, blows to the head, and suppuration in some adjacent portion of the body. When abscess of the brain follows an injury to the head, symptoms usually develop soon after the receipt of the violence, and the disease is attended by fever when pus has formed. In the present instance the absence of heightened temperature, and the presence of double choked disk, which is exceedingly rare if it ever occurs in abscess of the brain, warrant us, it seems to me, in excluding cerebral suppuration.

Having excluded one disease after another, we must accept the conclusion that we have a tumor of the brain to deal with. Can we determine the exact location of the growth? Time was when an exact localization of a tumor of the brain was either impossible, or a pleasing refinement in the diagnostic possibilities of the neurologist; but things have changed, for now the surgeon, flushed with success from his achievements in exploring various regions of the body, boldly comes forward and offers to remove

growths from accessible portions of the brain, if their location is accurately mapped out for him. You see, then, that the life of the patient in such a case as the one before you may hang as by a thread upon the diagnostic acumen of the neurologist.

Time will not permit me to dwell long on the subject of cerebral localization to-day. The absence of peevishness, fretfulness, and impaired intelligence, but more especially the presence of vertigo, nausea, vomiting, and the peculiar staggering gait of our patient, enable us to exclude the anterior lobes of the brain from being the seat of the growth. The absence of any hemiparetic or hemiplegic symptoms justifies us in excluding the great Rolandic region, the fibres of the corona radiata, and the ganglia at the base of the brain; besides, the intense vertigo, with vomiting, and the gait point from these regions of the brain. The base of the brain can be excluded, from the absence of certain cranial-nerve symptoms invariably found in growths in this region. The absence of hemianopsia excludes involvement of the cuneus of the occipital lobe. Localization in the temporosphenoidal and posterior portions of the parietal lobes is often difficult, but the absence of symptoms we should expect to find in lesions involving these regions, and the presence of others, such as vertigo, nausea, vomiting, and the peculiar staggering gait, most typically developed in lesions in the cerebellum, enable us to localize the tumor with a considerable degree of confidence in the latter region.

Vertigo, headache, and vomiting are probably the earliest and most frequent symptoms of tumor of the cerebellum. Cerebellar ataxia or titubation and choked disks are exceedingly common symptoms in growths in the cerebellar region, and the former of these has an important localizing value. If I were asked to name the symptom on which I rely most in localizing a growth in the cerebellum, I should, from clinical experience, unhesitatingly answer cerebellar titubation. It differs from the ataxia found in disease of the posterior columns of the cord in several important particulars. In cerebellar ataxia the incoördinated movements are best observed when the patient is on his feet, and, in fact, they frequently can scarcely be observed when the patient moves his legs while in the recumbent posture. In the second place, the incoördination is less affected by the loss of sight, as in covering the patient's eyes, than in sclerosis of the posterior columns of the cord. It has been well named titubation or staggering, for it often simulates a drunken man's gait. Some claim to have observed in lesions of the cerebrum remote from the cerebellum the peculiar staggering gait so typically found in the latter region. Gentlemen, I must confess that I doubt the accuracy of this observation. It has been my good fortune to watch over periods of several months a form of ataxia associated with growths in the anterior portions of the cerebrum. In one instance the tumor, which was cancerous in character, affected the pia over a large area covering the convex surfaces of extensive portions of both the anterior lobes, and in another, the growth, sarcomatous in nature, seemed to spring

from the anterior portion of the septum which separates the lateral ventricles. In both of these cases ataxia was well marked, but it was decidedly jerky in character and involved the arms to a much greater extent than the legs, a feature which I have never observed in cerebellar ataxia. Besides, in these cases of tumor of the cerebrum to which reference has just been made, there was developed late in the disease a jerky tremor in the upper extremities, even when the patients were quiet. Since cerebellar ataxia is a symptom of such value in localizing tumors in the cerebellum or its immediate neighborhood, you may desire to know whether it is always present in growths in this region. It is not. So far as we are able to judge from the carefully studied cases of tumors of the cerebellum, analyzed with reference to this symptom by Seppilli and others, it is not present in growths confined to one cerebellar hemisphere, provided they do not seriously affect by pressure or otherwise the vermes or median lobe of the cerebellum.

Vertigo, which is a common and early symptom of tumor of the cerebellum, especially when the median lobe is involved, either directly or indirectly, is often very manifest when the patient is lying quietly in bed, although it is usually most pronounced on efforts at rising either from the recumbent or semi-erect posture. Headache is often very well marked and the chief symptom of which the patient may complain, both early and late in the disease; but, from the fact that it may be most intense in the frontal or temporal regions of the head, it has of itself but little localizing value. Vomiting may occur from the presence of a growth in any portion of the brain, especially when the cerebral disturbance is attended by considerable headache; but in a case of tumor of the brain, when the vomiting is apparently causeless, or occurs from such trivial causes as raising the head from the pillow or turning from one side of the bed to the other, it points quite strongly to the cerebellum as being the seat of the malady.

During the last three years I have seen four cases of tumor of the cerebellum, and in every one of them there has been choked disk; but we must not gather from these cases that choked disk is an invariable symptom of tumor of this portion of the brain; besides, it is a common symptom of tumors in various regions of the brain. As in most diseases of the nervous system, so in tumors of the cerebellum, it is not upon any one symptom we rely for our diagnosis, but upon a combination of symptoms. The association of symptoms which is of the greatest value in localizing a growth in the cerebellum is made up of vertigo, headache, vomiting (early), cerebellar ataxia, and choked disk (usually later). Finally, I must tell you, gentlemen, that we may have a growth in the cerebellum with an entire absence of any brain disturbance, especially when it is situated in one hemisphere without involving, either directly or indirectly, the middle lobe.

We have located the tumor in the patient before you in the cerebellum not only, but, on account of the presence of cerebellar ataxia and the absence of any sensory disturbance or decided motor involvement, we can, with some degree of certainty, locate it near the median lobe or vermes, and so

near its posterior portion that it does not by pressure seriously involve the pons or medulla. Are there any symptoms present by which we can localize it more to one side of the median line than to the other? It seems to me that the partial deafness, which is of nerve origin, on the right side, and the slight paresis of the right side of the face, justify us in concluding that the growth is situated more to the right than to the left of the median line.

The two most common varieties of tumors of the brain that occur in children of this age (eleven years) are tuberculous and gliomatous. There is no history of tuberculosis in our little patient's family, and he presents no evidence of tuberculosis of the lungs, so that it is probable we have a gliomatous growth to deal with.

It is unlikely that medicine will exert any influence in getting rid of the growth by absorption, so that in the way of treatment we have left but two methods to pursue,—either to make the sufferer as comfortable as possible by anodynes, such as phosphate of codeia, hypodermically, in half-grain doses and upward, if pain is great, and by paying strict attention to all the wants of the patient; or by a dangerous surgical procedure attempt to remove the tumor. So far as I know, a tumor of the cerebellum has been successfully removed in only one case. This was done in Australia, and the patient, several months after the operation, was reported to be doing well, although his vision was not restored or improved. The dangers of the operation *per se* are so evident, and the difficulties of localizing a growth in this portion of the brain with sufficient accuracy for operation are so great, that it seems to me questionable whether the operation is ever justifiable. Of course it is the only possible chance the boy has of life. I shall try to explain to his parents the reasons for and against an operation, and if they decide to take the risk I shall recommend it.

[The report of the autopsy, performed eight months later, is as follows:

The skull is very thin (the brother of the deceased was trephined in the hospital for a depressed fracture, and his skull was found to be very thick). The vessels of the membranes are distended with blood, but no signs of inflammation are present. The brain appears large, and fluctuates on palpation. On cutting into the lateral ventricles, each is found to contain from four to six ounces of a light-colored watery fluid. The pressure caused by this fluid has thinned the cortical substance of the cerebrum and made the whole brain seem large and flabby. The cerebrum is white in appearance, and the gray matter is indistinct. No other gross lesions are present in the cerebrum.

Cerebellum: the vermes or middle lobe is the seat of a growth one and a half inches in its antero-posterior diameter and one inch in its transverse diameter. The tumor is soft and jelly-like in consistence, and a yellowish brown in color. It extends a little more to the right than to the left side. The middle and superior peduncles, the lower half of the roof (under surface of the vermiform process and its pial covering) of the fourth ventricle, the greater portion of the middle lobe, and portions of the floor of the fourth ventricle are infiltrated by the growth.]

REVIEW OF MEDICINE.

MEDICINE.

IN CHARGE OF JOSEPH P. TUNIS, A.B., M.D.,

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The Operation for Inflammation of the Appendix Vermiformis. (*Edinburgh Medical Journal*, August, 1893.) By John Duncan, M.A., M.D.

For convenience three varieties of this disease may be recognized: the diffuse, the localized, and the relapsing. In the diffuse form, as soon as purulent peritonitis develops, the abdomen should be opened and drained. It is a matter of extreme difficulty to determine just when to operate, and all the circumstances must be considered in arriving at a judgment. In the second variety the guide to operation is the presence of pus. The same rules which govern the detection of deep-seated pus collections in other parts of the body will apply to its diagnosis in the region of the appendix. In the third, or relapsing, variety no hard-and-fast rule can be laid down. One must be guided largely by the circumstances of the patient, as well as the severity of the case. If an operation is decided upon, it is best to operate in an interval of quiet, when the inflammatory action is least pronounced.

In all cases of the acute variety in which the diagnosis may contain an element of doubt, as well as in all cases where purulent peritonitis is fairly assured, the proper course is to make an exploratory incision. This enables an exhaustive search to be made for the origin of the trouble, and, if necessary, a thorough cleansing and drainage of the peritoneum.

A New Diagnostic Sign of Typhoid Fever. (*New York Medical Journal*, September 2, 1893.) By Simon Baruch, M.D.

So soon as a patient shows a rectal temperature above 102.5° F. in the morning and 103° in the evening for three successive days, especially if accompanied by headache, dulness, or apathy, he is placed in a full bath at 90°, which is reduced to 80°, while constant friction is maintained over the body. In three hours, the temperature still being above 102.5°, he receives another bath five degrees cooler. This is repeated until the temperature of the bath is 75°. If one or more of these baths fail to reduce the rectal

temperature two degrees in half an hour, the diagnosis of typhoid fever is almost certain, and the bath treatment is continued.

The resistance of the rectal temperature to a bath of 75° for fifteen minutes, with friction, is an almost certain test of typhoid fever.

The Treatment of Typhoid Fever based on its Etiology. (*New York Medical Journal*, September 2, 1893.) By J. T. Shuell, M.D., of Parnell, Iowa.

Probably calomel is our best internal antiseptic, but its continued use is depressing. It may be used with advantage in the initial stages in full doses continued for a few days, and in small doses of from one-twentieth to one-twelfth of a grain for the first week or ten days. Bismuth in large continued doses fulfils all the indications. Milk is the ideal food for the typhoid fever patient. Cold water is the best antipyretic. From a quart to half a gallon of pure cold water should be given to the patient each day, whether he asks for it or not. Sponge-baths should be employed whenever the axillary temperature exceeds 102° F.

Thorough irrigation of the colon should be practised early in the disease by means of a fountain syringe. At least half a gallon should be injected in adults. Irrigations do good by removing poisonous masses, together with their ptomaines, from the intestines, and thereby greatly modify the course of the disease. They may be repeated at intervals of three days for the first week or ten days of the disease. In the stage of necrosis they should be abandoned, or else employed with great caution.

Obesity treated by an Exclusively Nitrogenous Diet and Copious Libations of Warm Water. (*Lancet*, July 15, 1893.) By Thomas D. Savill, M.D.

A man aged sixty-eight years was quite unable to walk by reason of his bulk and a stiffness of the hip-joint due to coxalgia. There was also a suspicion of chronic Bright's disease, and a history of gout, as well as a leg ulcer. He was placed upon a diet consisting of one pound of cooked fish and one pound of cooked lean meat daily, with a pint of water sipped slowly, as warm as he could comfortably drink it, every two hours. No vegetables, milk, or other articles of diet were allowed. He managed to drink five or six pints of warm water in a day, and his weight began to fall steadily. After four months' treatment the diet was modified by the addition of two small slices of bread and butter at breakfast and tea, and by milk and sugar in his tea morning and evening.

After six months' treatment he returned to work, having lost nearly fifty-six pounds, during four months of which time he was on a strictly nitrogenous diet, without potatoes. His leg ulcer healed within a month of the commencement of treatment, and he began to be up and about, taking as much exercise as the ward allowed. He passed large quantities of urine of low specific gravity, which frequently contained crystals of uric acid.

In speaking of this case, Dr. Alexander Haig remarks that, had this same diet been given to a younger man, without Bright's disease, and with more active metabolism, the urea excreted would have been more like eight to ten grains per pound; the acidity would have been higher, and the uric acid excretions much less, in the relation, say of one to forty or one to fifty. He would have retained much more uric acid, and, as a result of this, would soon have suffered from gout. This patient suffered pretty severely from gout in the feet in former years, and, when he became obese and unwieldy, and therefore unable to work, his metabolism, urea, and acidity rapidly fell. He continually excreted an excess of uric acid from his joints in place of storing it in them, hence he lost his gout, but acquired acidæmia in its place, and this still further hampered metabolism, producing Bright's disease.

THERAPEUTICS.

IN CHARGE OF ALEXANDER D. BLACKADER, B.A., M.D.,
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ASSISTED BY

D. I. EVANS, M.D.

The Treatment of Sciatica. (*The Medical News,* July 1, 1893.) By Dr. S. Weir Mitchell.

The writer first remarks that it may seem needless to remind the student that the milder sciatic neuralgias are sometimes of malarial, gouty, rheumatic, syphilitic, anæmic, or other origin, and are mere funtional disorders like the typical fifth-nerve neuralgia. Sciatic pain may also be due to pressure on the nerve within the pelvis. Especially is this apt to be the case when the pain is very severe. Rapid intrapelvic carcinoma may give rise to a most furious sciatica. Sometimes a small tumor astride the cords of the plexus, and sometimes accumulations of fæces, have been the cause of the agony.

As to treatment of a distinct neuritis, he recommends in the mild cases that the patient should have rest in bed, constant and prolonged till recovery is assured. Dry cups are very serviceable if used early and thoroughly. A double row may be applied around the notch and down the leg. They should remain on half an hour. If for any reason this cannot be done, a plaster of mustard three inches wide, extending from the notch to the knee or ankle, is recommended.

In chronic cases he secures more absolute rest to the muscles by maintaining firm and even pressure over the whole leg by means of a carefully-applied flannel bandage reaching from foot to groin, and then preventing all movement by means of a light side-splint from axilla to ankle. The leg is kept extended at the thigh, but slightly bent at the knee. The joint-

angles are slightly changed at each dressing, and as the pain fades away gently passive movement is made whenever the bandages are changed. As the case progresses the splint is removed during the day, but replaced during the night. The bandage is kept on for some time later till the patient is able to move about freely.

Care must be taken to prevent all straining at stool. The general health is at the same time to be carefully maintained by nourishing diet, cod-liver oil, and iron if necessary. There may be left towards the close of treatment one or more points of persistent pain. These are best treated by a light touch of a white-hot Paquelin button.

Much care is to be exercised in the first attempt at getting up. Motion, the full use of the leg and buttock muscles, and the pressure of a hard chair or close stool may bring back the pain by compression of the nerve. Hence for the first week the use of crutches is enjoined, and sitting is forbidden.

Formerly he advocated the ice-bag and splint-rest. The even firm bandage he thinks less troublesome, but ice-bags may also be applied if necessary. With these measures he rarely fails to cure quickly or very much alleviate his cases of sciatica.

Borax in the Treatment of Epilepsy. (*Liverpool Medico-Chirurgical Journal*, July, 1893.) By Dr. William Alexander.

In this article the writer refers to the disastrous results often following the prolonged treatment of epilepsy by large and increasing doses of the bromides. He denies that bromides thus given produce an arrest of the attacks of sufficient extent and in a large enough number of cases to counteract their baneful effects on the brains of many patients. Only the few take the drug kindly and with benefit.

He then refers to his experience at Maghull, where patients have come after years of treatment with the bromides, one, two, or even more drachms a day, miserable pustule-marked, introspectively inclined creatures with feelings, fads, and nervous symptoms; minds and bodies apparently wrecked by the action of the drug.

He then speaks of the use of borax, which, when given alone, much disappointed him, although in several cases it acted like a charm. He thinks that we obtain the best results when it is given after the use of the bromides, or in connection with small doses of the sodium salt. For some time past he has used at Maghull the following prescription in a considerable number of the cases:

℞ Sodii biborat., gr. 200;
Sodii bromid., gr. 50;
Syr. simpl., ℥i;
Aq. ad ℥x.—M.
℥i ter die in aqua post cibum.

Sometimes, but rarely, a fourth dose has to be given. Although this treatment has a good influence on the attacks, its beneficial influence on the

mental condition of the patients is much more uniform. On entering the Home, many of the patients showed symptoms of post-epileptic or periodical mental disturbance; but under the administration of this medicine these mental disturbances almost disappeared. There are, however, some objections to this medicine.

1. The full dose sometimes produces gastric disturbance. In such case the drugs may either be lessened in quantity or stopped for a time. To avoid this the medicine should always be given after meals and well diluted. With careful dieting and caution in gradually increasing the dose, tolerance is soon established, and it can then be taken without effort or disagreeable after-consequences.

2. After the medicine has been taken for a time an erythema of the skin, approaching in some cases to an eczema, is occasionally observed. He thinks that, as a rule, in these cases the medicine may be continued, as the skin-disease will gradually subside under soothing local treatment. In some cases, however, the itching becomes intolerable and the drug must be temporarily stopped. Daily immersion in alkaline baths and inunction afterwards with vaseline or other simple lubricant generally quickly relieves the rash, and the resumption of the medicine is not usually followed by its reappearance.

3. Loss of hair is a more striking, more unexpected, and, fortunately, much more rare phenomenon.

In a paper on the same subject by Pastena (*Ann. di Neurologia*, fasc. i.–iii., 1892), the writer concludes, after an extensive trial of the drug, that it is most effectual in "classical" attacks of long duration. It is also very useful in the slighter forms, such as epileptic vertigo. It appeared to diminish the number of the attacks, and sometimes to stop them entirely for months together. The drug was given by him in doses of four to seven grammes in two hundred grammes of syrup and water.

NEUROLOGY.

IN CHARGE OF CHARLES W. BURR, M.D.,

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Shaking Palsy, a Clinical and Pathological Study, with the Reports of Two Autopsies. (*New York Medical Journal*, June 10, 1893.) By Charles L. Dana, A.M., M.D.

The author is of the opinion that paralysis agitans is characterized by a central vascularization of the spinal cord, a diffuse interstitial sclerosis starting from the blood-vessels and pia. This affects in particular the central and anterior portions of the gray matter and the lateral columns, leading in later stages to cell-degeneration, leptomeningitis, and some pe-

ripheral sclerosis; that there is sometimes degenerative neuritis of the peripheral nerves and chronic myositis; that the cerebral cortex and the basal ganglia and the cerebellum, and, in fact, the brain as a whole, is but slightly and only secondarily involved; that this chronic irritative process is due to a toxine which circulates in the blood, and may be of an endogenous and perhaps glandular origin; that the disease process first affects the end brushes surrounding the anterior horns and causes their degeneration; and that it finally impairs the anatomical structure of the motor and vaso-motor secretory cells, causing degeneration and atrophy of them to some extent.

A Contribution to the Subject of Myxœdema. (*Medical Record*, June 10, 1893.) By M. Allen Starr, M.D., Ph.D.

The author reports three cases treated successfully by thyroid extract. He discusses particularly the mental condition of patients suffering from the disease. He says, speaking of his own cases, that it is evident that the mental derangement has not been of the ordinary type seen in insanity. It cannot be classified under the head of melancholia, mania, or confusional insanity, or hallucinatory insanity, or dementia, though it presents symptoms which might at different periods in the course of the disease remind one of any or all of these forms. All three patients had hallucinations of sight. One of them had hallucinations of hearing, and would listen for hours to what she considered were communications from the Deity. Two had delusions well systematized, but not constant, and all had suicidal impulses. In all there was at times depression and despair, but in none was there any facial expression of settled melancholia. In one there was occasional excitement, almost maniacal. The general permanent mental state resembled mild dementia. Continuous conversation soon wearied them, and mental weakness was very noticeable. Will power was deficient. There was defect of sensation in all the cases; continuous use of the eyes producing great weariness; there being marked but varying deafness in two of the cases; taste and smell being slightly impaired in all three cases, and sensation of touch upon one side of the body in two. The mental symptoms, then, in this disease are similar in kind but quite different in course from those characteristic of the ordinary psychoses, and quite as typical in their character of myxœdema as are the physical appearances so well known.

Some Successful Results in the Treatment of Epilepsy. (*Therapeutic Gazette.*) By David Inglis, M.D.

The author recommends the bromides in full doses at the beginning, the dose to be diminished as soon as there is a favorable effect produced. So soon as toxic effects appear the bromides should be discontinued. He believes that in antipyrin and its analogues we have efficient substitutes for the bromides. They can be given for long periods with marked benefit,

and their use is without any deleterious effect upon the mental state. One precaution must be observed: even moderate doses may exercise a depressing effect on the circulatory apparatus.

PEDIATRICS.

IN CHARGE OF T. M. ROTCH, M.D.,

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ASSISTED BY

E. M. BUCKINGHAM, M.D.,

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Transmission of Tuberculosis to the Fœtus. (*Archives of Pediatrics*, September, 1893, p. 707.) By John M. Keating, M.D., of Colorado Springs.

The paper begins with quotations from Dr. J. W. Williams in a paper before the American Gynæcological Society, based on studies in the pathological department of Johns Hopkins Hospital. There are three methods by which bacilli may reach the genital tract: from areas of tuberculosis already existing in the individual; from the outer world by direct infection; and by bacilli, originating in the patient, gaining access to the outer world, and then invading the genital tract. Usually a diagnosis of tuberculosis in the female generative tract can be made only post mortem. The methods of infection are, *first*, from the blood. Proof of this is found in puerperal women in which the genitals are infected, and where the disease is most marked at the placental site; also where there is no involvement of the peritoneum, intestines, or lesser organs. The fact of this also appearing at the fimbriated extremities of the Fallopian tubes is explained by the vascularity of that portion; and this may be true of the ovary. Even where no tuberculosis is found elsewhere than in the generative tract, Williams is of opinion that the question of blood infection must not be dismissed, because we find it largely existing in apparently primary cases of bone lesion and local tuberculosis elsewhere. *Second*, infection from the peritoneum. Williams quotes many authorities for this, giving as high as fifty per cent. of cases of tubercular peritonitis with the tubes affected. *Third*, infection from other organs. These cases are numerous. Bacilli may come from the small intestine, the rectum, peri-rectal abscesses, tubercular ulceration of the bladder, etc. This form of infection is rarer in women than in men, in about the proportion of one to three. *Fourth*, infection from without. Bacilli often gain admission in this way. The question is, whether they give rise to genital tuberculosis. Williams tells us that he is not satisfied that it cannot occur,—that it does occur in some instances, yet there has thus far been no scientific proof. He quotes this also as Pozzi's opinion.

Bacilli can be introduced in various ways. The most important question is, whether they can be introduced by coition. Cohnheim, probably the first to discuss this question, has stated that if such introduction occurs it is rare. Genito-urinary tuberculosis is common in men, occurring in the bladder, epididymis, testicle, peri-urethral abscess, or ulceration of the penis. Jani has shown that bacilli may be found in the testicles and prostate gland without these organs showing any evidence of tuberculosis. He found bacilli five times in the testicle, four times in the prostate, but none in the semen. Birch-Hirschfeld has lately found bacilli in the seminal tubules. Therefore bacilli or their spores doubtless gain admission into the female genital tract without evidence of local disease on the part of the male infecting them. Primary tuberculosis of the vagina or of the cervix is rare, and therefore it is usually after these bacilli have gained entrance into the uterus or tubes that infection results. Even should they gain entrance to these passages, it would probably be necessary for them to reach the tubes in order to be able to multiply unmolested. Possibly this accounts for the fact that the tubes are more often affected than the uterus in primary cases. Experiments of Oucarani demonstrated that tubercle bacilli introduced into the vaginæ of rabbits which had been previously rubbed with tincture of iodine produced general but not genital tuberculosis, thus contradicting the statements of Cornil and Doborlonsky. Williams injected pure culture of tubercle bacilli into the vaginæ of rabbits, and did not produce local disease, nor did he find bacilli anywhere in the body afterwards. He states in his summary that it has never been satisfactorily proven that genital tuberculosis results from coition. Among the conclusions of Williams are the following: that genital tuberculosis is usually secondary to tuberculosis elsewhere, yet, in a considerable number of cases, it is primary in the vagina; that it is more frequent than is commonly supposed, in his experience about eight per cent. of appendages removed for inflammatory disease being tuberculous; that every part of the genital tract may be infected, the order of frequency being tubes, uterus, ovary, vagina, cervix, and vulva, the tubes being infected in nearly all the cases; that tuberculosis of the cervix may be taken for carcinoma; that tuberculosis of the tubes and ovaries is usually limited to the mucous membrane; that genital tuberculosis may be due to infection from without; but while this is probable it has not been proven. Even in apparent cases it is not possible to exclude blood infection. Breisky states that tuberculosis of the vagina is usually secondary, and mentions but one primary case; rather a doubtful one in the opinion of Keating. Winckel mentions that bladder tuberculosis is very rare in women; Strümpell, on the contrary, states that it is four times as common as in men. This last view is tenable if we accept the common position that bacilli usually enter the bladder through the urethra, seldom through the kidney. Theodore Landau acknowledges that infection of the genital tract may take place from without, but cites no cases. He states that bacilli entering the vagina do not remain in the uterus, because of unfavorable con-

ditions, but lodge directly in the tubes. The presence, therefore, of tuberculosis in the abdominal end of the tubes is not entirely due to auto-infection. It may have been carried there from without. H. P. Loomis discovered bacilli in the bronchial glands of persons meeting accidental death while in perfect health; therefore their presence in the genitals of women who have no pulmonary disease is not proof of infection by coition, even if married to tubercular husbands. Finding of bacilli in the secretions of the male genitals is proof that they can, at proper times, reach the Fallopian tubes, but the large number of wives who do not become tubercular shows that the presence of bacilli in the tubes is no indication that the woman must necessarily become tubercular.

Keating states emphatically that tubercular women have given birth to tubercular children,—*i.e.*, bacilli have been found in almost every organ of the fœtus in a condition capable of culture; that they have been found on the fœtal side of the placenta, and that they could have gotten there only through the maternal circulation. In support of this last proposition he quotes a very satisfactory case from Birch-Hirschfeld, the mother having acute tuberculosis, but with no lesion of the intestine or peritoneum. The child was removed immediately after the mother's death, and the placenta contained tubercle on both surfaces. The frequency of joint and glandular tuberculosis in children also speaks in favor of its direct transmission before birth. Jacobi mentions a case in his own practice where miliary tubercles were found in the liver, spleen, and pulmonary pleura of a seven months' fœtus. Variola, syphilis, relapsing fever, malaria, measles, have been transmitted from mothers to children in utero.

The author refers to the well-known fact that wives of syphilitic men can give birth to syphilitic children without themselves having the appearance of syphilis. He refers to Colles's law of apparent immunity and the process known as *choc en retour*, and then continues: "We do know of local genital tuberculosis in women, which has not produced pulmonary phthisis, and indeed probably many women are infected locally, and the bacillus never gets beyond the point of infection, . . . in this way a mother with apparent immunity might transmit to her offspring. I have seen cases of children dying of tubercular meningitis before the first year where the mother exhibited no evidence whatever of tuberculosis, but where the father was a prounounced consumptive before marriage. May we not, then, believe that a tubercular father can propagate a tubercular offspring, just as we know that a syphilitic one is liable to do, without infecting the mother? We have also another fact which helps to maintain the analogy,—viz., the latent manifestations of these diseases under these conditions."

The paper ends by asking if we may make the following conclusions: "1. Unrecognized genital tuberculosis in women without pulmonary disease is not uncommon. 2. A tuberculous mother can transmit the disease to her offspring in utero. 3. Tuberculosis is apparently at times confined to the generative organs of women, probably with greater frequency than we now

recognize. 4. Bacilli or their spores can be conveyed by means of seminal secretion to women when no apparent tubercular lesion is present in the male generative organs. 5. Women may and often do escape tuberculosis when transmitted in this way, and even when evidence exists of tuberculosis of the male generative organs. 6. Is it not possible for the father to transmit his disease directly to the fœtus, the mother not proving a fertile soil? and if so, is it not possible for this inheritance to become latent in the child, only to manifest itself when accident or environment brings it into activity? And can we not go still further and assert that the bacillus or its spores inherited from either parent may be carried into another generation, and either become manifest in glandular affections, joint troubles, or even finally in pulmonary disease?"

SURGERY.

IN CHARGE OF B. FARQUHAR CURTIS, M.D.,
Surgeon to St. Luke's Hospital and to the New York Cancer Hospital.

A Case of Splenectomy. (Ein Fall von Milzexstirpation. *Wien. klin. Wochenschr.*, July 27, 1893, p. 543.) By Professor K. G. Lennander.

Lennander reports a case in which he successfully removed the spleen for hypertrophy with beginning pseudo-leukæmia. The patient suffered from severe pain in the abdomen (some localized peritonitis existed around the gall-bladder), the spleen was enlarged and tender, the hæmoglobin in the blood was reduced to fifty per cent., but the proportion of white to red blood-corpuscles was one to three hundred and twenty-nine, and there were no enlarged lymphatic glands. The spleen weighed eight hundred grammes after removal and had the normal structure. Five months after the operation the patient was much stronger, the hæmoglobin had increased to eighty per cent., while the proportion of white to red blood-corpuscles remained the same. Lennander quotes the statistics of splenectomy collected by Filippow and Kusnezow, giving a mortality of nearly sixty per cent., but adds to them eighteen more recent cases with four recoveries. The improvement in results he ascribes to the refusal to operate upon cases with well-marked leukæmia. He thinks it possible that a beginning leukæmia or pseudo-leukæmia, if of splenic origin, can be arrested by the removal of the organ. Low hæmoglobin percentages, very large tumors, and adhesions form the chief contra-indications, or at least signs of danger for the operation.

Surgery of the Air-Passages and Thorax in Children. (*Lancet*, 1893, ii. 615.) By Bernard Pitts, M.A., M.C. Cantab.

Pitts deals with various injuries and surgical affections of the air-passages in children. He reports seventy-eight cases of scalds of the throat, from steam or hot water, in children averaging three years of age, with

fifteen deaths. Difficulty in respiration was nearly universal, and tracheotomy was performed twenty times with eight recoveries, and six intubations were done with three recoveries. The cases which did well showed immediate improvement on entering the hospital, and Pitts, therefore, recommends operation in any case which does not show early relief of the dyspnœa. He advises scarification of the epiglottis, etc., but does not appear to have had much experience with this difficult manœuvre. Intubation he considers useful for the milder cases.

He approves of the now recognized practice of draining all post-pharyngeal abscesses through an external incision in the neck, and would even do a tracheotomy to gain time for this operation, if the dyspnœa were great, rather than resort to a pharyngeal incision. In children less than one year old such abscesses seldom originate from spinal caries.

Pitts relates three cases of dyspnœa due to the pressure of a thyroid tumor in children of fifteen and sixteen years of age,—the goitres, however, having already been in existence for several years. In two cases the isthmus was divided and the dyspnœa thus relieved. In the third, a desperate case, the gland was removed after a hasty tracheotomy, but death ensued from broncho-pneumonia.

In the case of very young children with laryngeal papillomata, Pitts advocates a preliminary tracheotomy,—delaying extirpation until the larynx is more developed. In older children the growths can be removed by thyrotomy (laryngo-fissure) more easily than by intra-laryngeal methods. Recurrences are very frequent. The operation need not injure the voice.

Osteoplastic Operations upon the Cranial Bones. (L'osteoplastie cranienne. *Gaz. des hôpitaux*, July 22 and 29, 1893.) By A. Chipault.

Chipault gives a very full account of all the attempts which have been made to fill the gap left after extensive removal of bone from the vault of the skull. Foreign materials, such as hard rubber, lead, celluloid, ivory, and aluminum have been used. (Roswell Park's suggestion of gold-leaf is not mentioned,—perhaps because it was intended to prevent adhesions between the brain and its coverings rather than to replace the bone.) The great majority of such attempts have failed, although in a few the plate has been successfully healed in, and has served its purpose of protection, celluloid having proved the most practical material. Decalcified bone has been used, but disappears by absorption after a time, its place being taken by fibrous tissue. Living bone from an animal (dog, goose) has been healed in, but the final result is unknown. Bone from another part of the same individual or the bone just removed from the opening has been inserted, but it also appears to become absorbed in whole or in part with the lapse of time.

The only thoroughly reliable methods are those making a thin bone-periosteum flap (König), or a flap of the entire thickness of the skull (Wagner-Wolff) left in connection with the soft parts. The latter in particular

enables the operator to make very extensive openings in the skull. The former is excellent for closing old openings without causing any fresh bone-defects. Chipault concludes by suggesting a new method for cutting the Wagner-Wolff flap, but it does not appear to offer any marked advantages over those already in use.

GENITO-URINARY SURGERY.

IN CHARGE OF WILLIAM K. OTIS, M.D.,
New York.

Some Observations respecting the Pathology and Pathological Anatomy of Nodular Cystitis. (*Journal of Cutaneous and Genito-Urinary Diseases*, July, 1893.) By Samuel Alexander, A.M., A.B.

In certain cases of prolonged cystitis there have been observed, in addition to the usual changes due to chronic inflammation, a number of small nodules in the mucous membrane of the bladder resembling the enlarged solitary lymph-follicles of the intestine. These nodules in the bladder vary in size from a small pin-head elevation to that of a large pea. Their number and situation likewise vary in different cases. Similar nodules have been observed in the posterior urethra, in the ureters, and in the renal pelves, but the study of these lymphoid formations in the urinary tract has excited very little interest, and it is still an open question whether the nodules observed in inflammatory conditions represent a normal part of the mucous membrane of the urinary tract, or are to be regarded as new pathological formations. After a long and painstaking investigation, Professor Alexander has arrived at the following conclusions in regard to this condition:

1. That the lymphoid nodules which occur in certain cystites represent a part of the normal mucous membrane of the bladder, and that the same is true in regard to nodular inflammations of the renal pelves, the ureters, and the posterior urethra.

2. That when there are a great number of lymphoid foci in the normal mucous membrane, infection of the bladder, if prolonged, is likely to assume a peculiar type, due to the enlargement of these foci into prominent and very vascular nodules, and that these cystites should be regarded as a special clinical variety, to which the name nodular cystitis should be given.

3. That in cases of tubercular infection of the bladder, in which there are numerous lymphoid foci present in the normal bladder, these become enlarged, and as a result of the special infection undergo degenerative changes which are characteristic of tuberculosis.

4. That the lymphoid foci in the normal mucous membrane vary greatly in size and number, that prominent lymphoid nodules may occur in a bladder apparently normal, and without a previous inflammation. This, how-

ever, is very exceptional, and it cannot be positively asserted whether the enlargement of the nodules in these cases is a normal or pathological condition.

Experimental Researches in Electrolysis of the Urethra. (Recherches expérimentales sur l'électrolyse de l'urètre. *Mal. d'Org. Genito-Urin.*, August, 1893.) By Dr. E. Desnos.

This article is an elaborate and careful account of a series of experiments and clinical observations with a view to ascertain, if possible, the value of electrolysis in the radical cure of urethral stricture. The investigations include careful observation of twenty-five clinical cases and experimental research on nine dogs, conducted in the physiological laboratory of Professor Dasre. The results arrived at are thoroughly confirmatory of the experiments made and the views expressed previously in this country by Drs. Keyes, Tilden-Brown, Brewer, and myself, and prove that electrolysis is not only without value in the cure of urethral stricture, but that it is capable of doing a great deal of harm. When a current of a strength between ten and twenty milliampères was used for twelve minutes, gonorrhœal strictures lost their characteristics and became densely cicatricial. On passing a current of fifteen milliampères for ten minutes in the healthy urethra of a dog, a stricture was begun which at autopsy, three months later, would only admit a horse-hair. Dr. Desnos also concludes that weak currents produce no effect whatever, either immediate or remote.

ORTHOPÆDICS.

IN CHARGE OF REGINALD H. SAYRE, M.D.,
Assistant to the Chair of Orthopædic Surgery, Bellevue Hospital Medical College, New York.

Mallet Finger. (*Philadelphia Medical News*, September 9, 1893.) By R. T. Morris, M.D.

This deformity occurs from receiving a blow on the end of the finger while the extensor tendon is tense, and the force which in ordinary conditions would tend to flex the finger expends itself as well in tearing loose part of the extensor tendon from its attachment to the ungual phalanx, and also in thinning it, the fibres sliding away from each other as do the fibres of a textile fabric when the latter is stretched violently but not torn.

After the occurrence of the injury the end phalanx becomes sharply flexed and remains so. For repair of the tendon, Dr. Morris suggests a longitudinal incision in the median line on the dorsum of the finger from a short distance back of the nail, dividing the thinned tendon longitudinally into the two fasciculi into which it naturally separates, dividing the tendon transversely and advancing each fasciculus to a point upon its own side near the base of the finger-nail, where it is sutured to the under surface of

the skin by a suture which passes through the skin and is tied on the outside. The fasciculi are sutured to the skin rather than to the periosteum because the former structure affords a firmer hold, and the cut end of the tendon makes as good union with the phalanx as it would if sutured directly to periosteum. The finger-nail is sometimes temporarily lost on account of the disturbance of its matrix. When the advanced fasciculi are sutured in place there is an over-correction of the deformity of the phalanx which also causes a flexion of the middle phalangeal articulation, which condition disappears spontaneously in a few weeks, leaving a perfect finger.

Plaster Jackets.—In the *Philadelphia Medical News*, September 9, 1893, Dr. E. C. Gehrung, of St. Louis, comments on an article by Dr. A. J. Steele of the same place, which appeared in the *News* of January 21, 1893, in which Dr. Steele advocates, in disease of the cervical or upper dorsal vertebræ, carrying the ordinary plaster-of-Paris jacket above the shoulders like a vest, and up the back of the neck and around the head. Dr. Gehrung claims that he first introduced this modification to Dr. Steele's notice in a case that had not done well under various forms of treatment, and where he applied the plaster bandages around the chest sufficiently tight to prevent the respiratory movements; then obliquely across the shoulders so as to immobilize the clavicles and scapulæ, and continued until the entire chest was covered down to the twelfth dorsal vertebra behind, and thence along the lower border of the ribs and costal cartilages to the inferior extremity of the sternum. This bandage, when tightly applied and allowed to harden before the suspension is interrupted, will keep up every advantage gained by the suspension, since on account of its tight application it sustains the chest rigidly in the shape given to it.

Dr. Steele responds that it was not this "short corset" to which he laid claim, but to ordinary plaster jackets reaching to the hips and built out on top to cover the shoulders, and claims priority in using this method.

Without entering into the respective claims for priority, the editor would like to draw attention to one or two points in these articles. When the disease is in the cervical region, a plaster jacket running up the back of the neck and around the head does afford a large amount of protection, though it is not practicable to so apply it that it will exert a traction force to lift the weight of the head off the diseased vertebræ, and so in the vast majority of cases while useful temporarily is not so beneficial as a jury-mast. In those cases where the disease is in the dorsal region, it is evident that the plaster head-piece and part resting on the shoulders as a base of support simply adds an additional burden to the spine, which is already groaning under the weight of the superimposed trunk, and the statement, that if the bandage is "allowed to harden before the suspension is interrupted it will keep up every advantage gained by the suspension," is fallacious, as the jacket simply rests on the shoulders and cannot act to lift off their weight. The editor has seen a similar mistake made very frequently in the application

of plaster jackets, which, having no waist to serve as a base of support on the crests of the ilia, were prevented from falling off by having shoulder-straps applied, the gentlemen evidently losing sight of the great principle of taking off the superincumbent weight of that part of the body which was above the diseased point, and regarding the jacket simply as a fixation splint, and applying it very poorly even for this purpose. He has even seen jury-masts habitually made, in a large hospital, with pads where the cross-bar was attached, apparently that the rivet might not rub the child too hard on top of its head when the jury-mast rested there. A greater travesty on the Sayre treatment than this could not be imagined, and it is not to be wondered at that one of the gentlemen above mentioned says he gets "better results and less deformity in the treatment of this disease by recumbency, combined with immobilization, and possibly traction, than in allowing the patient to be up and about with the superincumbent weight pressing upon the diseased bones." The former is certainly the more rational, and if the plaster jacket and jury-mast are not applied so as to remove this superincumbent weight, they fail to do their full duty and are not efficient in the treatment of spinal caries, as they are when rightly used in suitable cases.

OBSTETRICS AND GYNÆCOLOGY.

IN CHARGE OF JOHN M. KEATING, M.D., LL.D.,

Colorado Springs, Colorado; Fellow of College of Physicians of Philadelphia; Gynæcologist (Emeritus) to St. Agnes's Hospital, Philadelphia; formerly Visiting Obstetrician to the Philadelphia Hospital (Blockley); Editor "Cyclopædia of the Diseases of Children," etc.

The Induction of Premature Labor. (*American Gynæcological Journal*, May, 1893.) By L. Ch. Boisliniere, M.D.

The Krause method is given by Dr. Boisliniere as follows: After the patient's bowels and bladder have been well evacuated, and the vagina thoroughly washed with warm water rendered antiseptic by a two-per-cent. solution of creolin or a five-per-cent. solution of carbolic acid, using no bichloride of mercury, which is always so dangerous, a No. 12 English bougie, not a catheter, as this may carry germs, is smeared with carbolized oil. The woman is placed in Sims's semi-lateral position, a Sims's speculum being introduced, the anterior lip of the cervix is secured by a strong vulsellum, and the bougie is gently introduced through the cervix into the uterus, following the axis of the superior strait. The bougie is guided between the uterus and membranes to the depth of about eight inches. The vaginal end is then tied into a knot and left there. The vagina is stuffed very carefully with iodoform gauze, which acts also as a tampon, soliciting uterine contractions. In packing the vagina, avoid the course of the urethra, in order to prevent the necessity of catheterization. Then you can leave your patient, to be called probably within six or twenty-four hours. The uterine contractions will then have begun and the cervix found softened.

Then the bougie should be withdrawn, the os dilated forcibly with the fingers, and, if still remaining contracted, and the case be very urgent, multiple incisions around the os, with a probe-pointed bistoury or scissors, should be made; the Barnes's bags, modified by McLean, are then to be used, and when sufficient dilatation is obtained, rupture the membranes and terminate rapidly the labor with the forceps on the head, or on the child's pelvis if it present by the breech. These operations should be performed quickly but prudently, as it is the child's life which is to be saved, the mother being in very little danger. Reliable statistics show that nine out of ten children, and twenty out of twenty-five women, are saved by this operation.

The Operative Treatment of Fibroid Tumors. (*American Gynæcological Journal*, May, 1893.) By Dr. Matthew D. Mann.

The author observes that one of the most marked effects of improved methods, with consequent improvement in results, has been the extension of the indications for operation. In a paper which he read in 1887, on "The removal of solid uterine and ovarian tumors," after quoting from Keith the five indications which he admitted, Dr. Mann ventured to suggest another, —namely, those cases of fibroid tumors, no matter what their size, which, by their presence, through pain and suffering, are gradually wearing out the life of the patient, and making that life, while it lasts, not worth living. That such cases do exist, and that they do cause death, even before reaching a great size, he has had several opportunities of observing. To leave such a patient to a slow, lingering, agonizing death seems to me scarcely justifiable when so good a chance for relief seems to be afforded. Those cases of sloughing, intra-uterine fibroids where septicæmia already exists, and where enucleation only adds to the danger by affording new avenues for absorption.

The Treatment of Uterine Fibroids. (*American Gynæcological Journal*, May, 1893.) By Henry T. Byford, M.D.

There are certain facts, the writer points out, in connection with the growth of uterine fibroids which we may set down as true, or approximately true, upon which we may base the principles of treatment. *First.* Interstitial uterine fibroids are of slow growth, and usually stop growing at the menopause. *Second.* Extra-uterine pedunculated and intra-uterine polypoid fibroids, and those that project from the uterine walls (subserous and submucous), show less tendency to stop growing than the interstitial variety. *Third.* A multitude of interstitial tumors cause a rapid increase in the size of the uterus, but after a time outgrow and, by crowding together, interfere with their nutrient supply, stop growing and undergo degenerative changes. *Fourth.* Single tumors show but little tendency to stop growing, and, when interfered with in their development, are apt to undergo œdematous or cystic degenerative changes. The same may be said of two or three nodules developed as an isolated mass. *Fifth.* Cystic fibroids grow in spite of

treatment or the supervention of the menopause. *Sixth.* Uterine polypi are curable only by removal.

Some of the Elements of Success in Cœliotomy. (*American Gynæcological Journal*, May, 1893.) By A. Lapthorn Smith, M.D.

The author has found that death following abdominal section is due to one or more of the following causes, which he has placed in the order of their frequency: *First.* Sepsis or peritonitis. *Second.* Hemorrhage, either immediate (otherwise called shock) or secondary. *Third.* Prolonged anæsthesia. *Fourth.* Interference with the peristalsis of the bowels. *Fifth.* Procrastination of the operation.

In some desperate cases of abdominal distention, when everything else had failed to relieve the tympanites, he had been indebted to Professor Skene's prescription, which he thought should be more generally known: Six or eight grains of quinine dissolved in aromatic sulphuric acid, with about half an ounce of water, with acacia enough to make the mixture bland, may be administered by enema. Just previous to its administration sufficient warm water should be added to raise the temperature of the mixture to that of the rectum. This combination, he says, he has found will relieve flatulence if it can be relieved at all, and is at the same time a good way of supporting the patient; in fact, he thinks its action in relieving flatulence is by restoring the tone of the intestine. Rather than allow the patient to die from obstruction of the bowel, the abdomen must be reopened. In one case he knew of this having been done, and the patient's life saved, —the intestine having been found adherent to the abdominal incision. Such a complication, of course, could be prevented by drawing the omentum down over the bowels before closing the incision.

OPHTHALMOLOGY AND OTOLOGY.

IN CHARGE OF J. E. HARPER, A.M., M.D.,
Chicago, Illinois.

Little Things in Ophthalmology.—At the meeting of the Illinois State Medical Society (*Journ. Am. Med. Asso.*, May 27, 1893), Dr. A. E. Corr read a paper in which he claimed that the adjustment of the lenses selected to one's eyes and face was a matter of much more importance than is thought. The pupillary distance should correspond as near as may be with the space between the centre of the pupils when viewing the objects at the distance the lenses are to be used. The distance between the optical centre of the lenses after they are placed in the frames in which they are to be worn should correspond to this pupillary distance. The height of the nose-piece should be so arranged that the line of vision to the same object should pass through the optical centre of the lens. The prominence of the

nose-piece should be so arranged that the posterior face of the lenses just clears the eyelashes, and the lenses should be so otherwise adjusted that their faces should be at right angles with the visual lines. If the lens is tilted from this, either vertically or horizontally, it becomes in that meridian in a degree a cylinder.

A Case of Cysticercus in the Vitreous, and one of Sympathetic Optic Atrophy.—F. Lopez reports a new case of cysticercus in the corpus vitreum and a case of sympathetic atrophy of the optic nerve. Three years before, a particle of iron had penetrated the eyeball of a young man and become fixed between the papilla and the macula lutea. It was well tolerated. After a few days of pain had passed the man returned to work. Five months later the good eye suddenly began to suffer with pain, photophobia, photopsia, etc. Very soon he was unable to distinguish light and darkness with his right eye, which had not suffered injury, and the left wounded eye was used for walking and working. There was complete atrophy of the right papilla. The wounded eye continued in a useful condition, with only occasional congestion and slight pain. A cataract was forming, and the lens had a slight yellowish coloration due to oxide of iron derived from the foreign body.—*Gaceta médica de México*, vol. xxviii. p. 180; *Univ. Med. Journal*, April, 1893.

A Combination Test for Color Vision.—A. St. Clair Buxton (*Lancet*, July, 1893) writes as follows of the telechrome invented by him and his recent improvements on it: "My original intention with regard to the telechrome was to supply a reliable method of testing the color perception for colored lights—as distinct from colored fabrics—in candidates for marine or railway service who had succeeded in passing the Holmgren wool test, which alone I consider to be insufficient; for it has been shown that some persons who are able to acquit themselves creditably when subjected to examination with wools are yet unable to recognize colored lights. As first constructed the telechrome was entirely an additional, a supplementary test. This meant that additional time was needed to conduct the complete examination. To obviate this objection I have recently made some improvements in my instrument which enable the surgeon to combine the wool test with the lantern test, and so to examine the candidate completely as regards color-vision at one single operation. For this purpose the telechrome is fitted with a disk carrying colored glasses which (with gaslight) show the following colors: 1, pale grass-green; 2, pale rose; 3, bright red; 4, bright blue; 5, signal green; and 6, yellow (gaslight). One of the principal features of the instrument was the lever arrangement, which allowed the operator rapidly and unexpectedly to vary the luminosity. I consider this a most important point in any lantern test, because a color-blind man who is aware of his defect can often learn to recognize the color for which he is blind by the fact that with equal illumination it appears to be less

bright to him than its complementary color. With an instrument in which the luminosity is constantly being varied there is no fixed standard of comparison and therefore no chance of a man being able to deceive the examiner. In using the new pattern of telechrome the *modus operandi* is as follows: The lantern is placed in a somewhat darkened spot (a closet, a passage, or at the end of a metal tube) fifteen feet from the candidate, who himself remains in daylight with a set of Holmgren's wools on a table beside him. In rotation the test colors are shown in the telechrome with various degrees of illumination, and he is required to pick out the skeins of wool which match each of the telechrome colors, irrespectively of shade. A man who has defective vision for either the colored lights or the colored wools will be completely incapacitated from performing the task set him and will be at once detected. No further test is necessary.

"I may add that a 'fogging glass' is still provided, and that it is useful in reproducing the effect of a colored lamp as it appears when seen through mist. In the railway telechrome the perspective segment has two apertures, one representing the perspective of a railway lamp at one hundred yards, the other at one thousand yards. In the marine telechrome the apertures represent the perspective of a ship's light at one hundred yards and two miles respectively."

Poisoning following Instillations of Cocaine Solutions into the Eye. (Trousseau).—In *Rev. International of Therapeutics and Pharmacology* Dr. Legain reported the following case: "A., aged fourteen, male, robust, foreign body slightly embedded in corneal layers, used four drops of a one-per-cent. solution of cocaine, and repeated in three or four minutes. Almost immediately the young man complained of vertigo, præcordial oppression, disturbed vision, and pallor. He fell back in the chair incapable of motion. The pulse became smaller and smaller and slower, 35 per minute. The pupil considerably dilated. These symptoms went off gradually by the use of cold affusions to the face and a drink of strong tea, and at the end of twenty minutes the man was in his usual condition. The total amount of cocaine used was four milligrammes (one-sixteenth grain), and part of that was washed away by the tears." Legain thinks that occurrences of this kind are more frequent than generally supposed, and that the external application of cocaine may not prove altogether harmless. Trousseau says that in his personal experience at his clinics where cocaine is used two thousand and five hundred or three thousand times during the year, no symptoms of poisoning have been seen, even after serious operations on the eye. He thinks, however, that the drug may be more active on the conjunctiva than beneath it. He had one case of strabismus in private practice which presented, after repeated instillations, syncope, pallor, and vomiting, which he ascribed more to nervousness. He does not believe that cocaine produces any poisonous symptoms when used in this way. Beauvais ascribes the symptoms to idiosyncrasy. (*Times and Register.*)

DISEASES OF THE LARYNX, NOSE, AND SURROUNDING STRUCTURES.

IN CHARGE OF J. PAYSON CLARK, M.D.,

Physician for Diseases of the Throat, Massachusetts General Hospital; Physician to the Throat Department, Boston Dispensary.

Two New Operations for Obstruction of the Nasal Duct, with Preservation of the Canaliculi, and an Incidental Description of a New Lachrymal Probe.—Dr. G. W. Caldwell (*N. Y. Medical Journal*, May 27, 1893) writes that as the preservation of the canaliculus is important, he makes the following operation:

"A small probe being passed through the upper canaliculus well into the sac and held in position by an assistant, the tissues at the inner canthus are made taut by pressure against the side of the nose, and a small incision is made from the inner extremity of the inner canthus inward and backward directly into the sac upon the probe. A suture should be taken through the wall of the sac and the inner margin of the wound, the ends being left long for traction to facilitate the entrance of instruments into the sac in the subsequent manipulations. The nasal duct may now be explored, and the calibre, length, character, and position of strictures determined by means of the probes which I will describe farther on. A stricture being found, it should be divided at once by any narrow probe-pointed knife. If the edge be made rather dull, its service can be better limited to the stricture. Two or three nicks are better than one deeper cut. Dilatation is carried directly up to No. 12 if the duct will admit it with gentle pressure, and the duct irrigated with antiseptic solution, as boric acid. If the stricture is slight, the sac may be allowed to close at once; if not, the wound should be prevented from closing by the insertion of an obturator made of a fragment of rubber tissue, while the stricture is dilated every three or four days until the wound in the duct has healed, when the sac wound may be freshened and closed by catgut sutures. The operation is done without pain under cocaine, a few minims of a four-per-cent. solution being injected into the point in the inner canthus where the incision is to be made, and used freely in the duct. In a few cases, when the inferior turbinated is small and high, it is possible to explore and dilate the nasal duct by way of the lower opening in the inferior meatus of the nose.

"The probe referred to above is made according to my design by Tiemann & Co., and consists of a wire staff eleven centimetres in length, with a central plate for convenience in handling. On each end is a bullet-shaped tip one centimetre long, with conical point, parallel sides, and abrupt shoulder. The tips are graded in size, as are Theobald's probes, in successive numbers, each unit of which represents one-quarter millimetre of diameter. The shoulders are intended to emphasize the qualities of an obstruction, while the length is sufficient to allow it to be retracted into and held

by a stricture for the purpose of dilatation. A complete set comprises seven double-ended probes numbered from 1, the staff alone, to No. 14, the largest size.

"The second operation is for that class of cases where, in spite of or on account of the long-continued passage of tremendous probes, the duct has become hopelessly closed by fibrous or bony growths; and in fractures, caries, and persistent dacryocystitis, and in all cases in which obliteration of the sac is usually practised, it will be found that by tapping the nasal duct in the middle meatus the function of the tear-duct may be preserved. This is best done by the electric burr after passing a probe into the duct as far as the stricture. The opening should be made at the seat of stricture as indicated by measurements, and enlarged upward as far as necessary. In the two cases of bony closure in which I have employed this operation a complete cure has resulted. The operation is so evidently preferable to ablation or obliteration of the sac that no argument is necessary in its support."

Notes on the Pathology of Periodical Hyperæsthetic Rhinitis and its Treatment by Glacial Acetic Acid. (*Universal Medical Journal*, September, 1893.) By Charles E. Sajous, M.D.

After a discussion of the probable pathology of this affection and the relation of asthma to it, the writer goes on to speak of treatment. Cases in which no objective disease or malformation of the nasal fossæ exist are the most unsatisfactory to treat. To secure the highest possibility of success it is necessary to proceed to superficial cauterization in every case, whether the nasal cavities be the seat of local disease or not. Such a procedure, begun within the month preceding the periodical paroxysm, or during the latter, is of value. It will, in the majority of cases, subdue the symptoms for the year at least. As a caustic, glacial acetic acid has advantages over the galvano-cautery, being less formidable in appearance and productive of more lasting effects. "By causing an *organic alteration by coagulation* of the entire epithelial layer it paralyzes or destroys the terminal filaments furnishing the parts with sensation, and by disorganizing the ciliæ annuls their power of retaining in their meshes the irritating elements which induce the paroxysm." All parts of the anterior nasal cavities impinged upon by the respiratory current should be rendered asensitive. The writer uses a specially-designed applicator, with which the acid may be applied to a given spot and the surrounding and opposite tissues not be involuntarily cauterized.

Before applying the acid the parts are cocainized and then dried with absorbent cotton. Applications may be made to different spots as often as every other day. The parts already cauterized should be gone over two or three times to thoroughly penetrate the different strata of epithelium. For a full description of this method of treatment the reader is referred to the original article. The source of central adynamia should be diligently sought. Often a history of rickets in the patient or his family is found.

Alveolar Sarcoma of the Soft Palate. (*Journal of Laryngology, Rhinology,* etc., June, 1893.)—Dr. T. V. Fitzpatrick reports the following rare case: A woman aged fifty had some small warty tumors on the right anterior pillar of the fauces. Six years later one of these tumors became so large as to interfere with mastication and deglutition, and was partially removed. The portion not removed grew, and when removed about three years later by the writer measured two inches in length by one in width. It was found to be surrounded by a dense fibrous capsule, and was enucleated under cocaine anæsthesia with the finger. Hemorrhage was very slight. There was no recurrence nine months after the operation.

The Management of Foreign Bodies in the Air-Passages. (*Medical Record,* August 26, 1893.)—Dr. Max Thomer recommends tracheotomy in cases where a foreign body is in the larynx and the danger of suffocation is so immediate that there is not time to attempt an endolaryngeal operation, and when the foreign body has entered the trachea or bronchi. In the first two instances tracheotomy is performed with the idea of removing the foreign body; in the last instance rather for the purpose of directly exciting paroxysms of cough and thus facilitating the expulsion of the foreign body through the artificial opening. The writer reports a few cases.

DERMATOLOGY.

IN CHARGE OF W. A. HARDAWAY, A.M., M.D.,
Professor of Skin-Diseases in the Missouri Medical College, St. Louis.
ASSISTED BY
C. F. HERSMAN, A.M., M.D.,
St. Louis.

The Influence of the Solar Rays on the Skin. (*British Journal of Dermatology,* August, 1893.)—In a very interesting paper Bowles calls attention to some facts connected with sunburn which go to prove that it is not the heat which injuriously affects the skin, but the chemical rays. Alpine climbers have all remarked that sunburns are usually acquired on the snow and not on the rocks in the valleys, where the temperature is much higher. Glass-workers, who are exposed to a greater degree of heat, rarely become sun-burnt. A fact of interest in this connection is that those who experiment with electric lights of great power often exhibit all the phenomena of sunburn, although they have experienced little or no heat. These facts all go to show that it is something else than the heat rays which affects the skin in these cases. In corroboration an instance is related of a man who was severely burnt while crossing a snow-field at a considerable altitude, though the passage only required ten minutes. The author saw another person who was suffering from a severe sunburn acquired on the snows of a high Alpine peak, and made the interesting observation that

where freckles existed the skin did not seem to be affected. The protection against the sun afforded by a brown veil is well known. On one occasion the author painted his face brown, and went with a party of eighty persons up a mountain; in the evening all were sunburnt save the experimenter. This experiment has been amplified in many ways, and it has always been shown that the portions of the skin protected by the paint escaped, while the unprotected parts suffered. In the pigment of the skin we see an effort of nature to protect the skin, and it is remarkable how darkly pigmented persons living exposed to the sun shining upon the snow will often become. Many other illustrations of the fact that heat is not necessary to produce a sunburn are narrated. The author would explain the prejudicial influence of the sun upon the skin by comparing the epidermis to glass, which allows the light rays to pass, but not the heat rays: the former after their passage are decomposed into heat rays in the tissues.

Hidrocystoma. (*Journal of Cutaneous and Genito-Urinary Diseases*, August, 1893.)—Under the title of hidrocystoma Robinson again calls attention to a disease of the skin which he first described in 1884. The eruption usually occurs on the faces of women, middle-aged or older, who are exposed to heat and moisture, as in washing clothes. The regions occupied are the lower part of the forehead, the orbital region, the nose, the cheeks, and often the upper and lower lips. The lesions are generally discrete and not very numerous. The eruption is made up of tense, clear, shiny vesicles varying in size from a pin-head to a pea. The vesicles are at first deep seated, and the small ones resemble grains of boiled sago, while the larger ones present a bluish tint around the periphery. If left alone the vesicles dry up without bursting and leave little whitish bodies resembling milia. No evidence of a sweat-duct can be seen upon the lesion. There are no signs of inflammation connected with the eruption. The subjective symptoms are practically *nil*. Histologically the vesicles are found to consist of the dilated sweat-glands, the dilatation occurring in the corium. The diseases to be differentiated are ordinary sudamina, pompholyx, eczema, and adenoma of the sweat-glands.

PATHOLOGY.

IN CHARGE OF ALLEN J. SMITH, A.M., M.D.,

Professor of Pathology in the Medical Department of the University of Texas, Galveston, Texas.

Multiple Epithelioma.—Dr. George A. Phillips, of Lowell, Ohio (*New York Medical Journal*, June 10, 1893), describes a case of multiple subcutaneous epithelioma occurring in the person of an unmarried woman, aged thirty-four years. The first tumor appeared in the subcutaneous tissue of the right breast in August, 1891. In a month or two there were perhaps

a dozen others scattered here and there over the trunk. In May, 1892, sixty-four had appeared, and were pretty evenly distributed over the scalp, face, neck, trunk, arms, and thighs, but only three small ones ever appeared on the forearms or on the legs. By August 20, 1892, six hundred growths could be counted, besides many flattened clusters and minute isolated ones not taken into account. The most of these tumors varied from microscopic size to that of a hazel-nut or slightly larger, but the largest, and the first to appear in the right breast, weighed ten ounces. Microscopic examination of the growths exhibited their epitheliomatous nature, the histological structure consisting of nests of flat epithelial cells surrounded by a light stroma of fibrous tissue. Death occurred in October, 1892, being preceded for two months by paraplegia, general œdema, and intense aching general pains.

Addison's Disease. (*American Journal of Medical Sciences*, October, 1893.)—From a clinical study of six cases of Addison's disease, four completed by autopsy; from observation of the lesions of the adrenals in forty cases, in which at autopsy there were found changes in these organs without bronzing of the surface of the body during life; and from experiments upon lower animals, consisting of transplantation, excision, and destruction of the suprarenal bodies, and inoculations of aqueous and glycerin extracts of the suprarenals of lower animals and of a man dead six hours prior to the removal of the organs from a chronic heart affection, Dr. W. Gilman Thompson draws the following conclusions. The author states that he regards but three hypotheses as to the etiology of the affection as reasonable: that it is a blood disease; that it is due to adrenal toxins; or that it is due to sympathetic nervous irritation, either functional or organic.

1. Addison's disease is a condition arising from and dependent upon irritation of the abdominal sympathetic nerves through lesions of themselves, their ganglia, or diseased suprarenal capsules.

2. In the great majority of instances (fully eighty per cent.) the disease originates as a secondary or primary tuberculosis in the adrenals, and the sympathetic system is either involved by extension of pathological processes or is functionally disturbed and irritated through the intimate anatomical connection existing between the adrenals and the relatively large number of nerves which they contain.

3. Actual lesion of the sympathetic system, while far more common than heretofore supposed, is not necessary to produce the varied symptomatic phenomena of the affection. Functional disorder, through irritation caused by diseased adrenals, may sometimes cause all the symptoms, just as in chorea and in many of the conditions of aggravated hysteria and other functional nervous disorders we are often unable to find definite lesions.

4. In a certain proportion of cases (not over twenty per cent.) the adrenals are affected by some other lesions than tuberculosis, or else they remain normal (in twelve per cent.) and the sympathetic nerves and ganglia are alone diseased.

REVIEW OF ITALIAN, SPANISH, AND PORTUGUESE MEDICINE.

IN CHARGE OF A. M. FERNANDEZ DE YBARRA, M.D.,
New York,
Corresponding Member of the Medico-Chirurgical Academy of Madrid, Spain, the Argentine Medical Circle of Buenos Ayres, South America, and the Society for Clinical Studies, of Havana, Cuba; Executive Assistant Secretary-General of the First Pan-American Medical Congress.

Unexpected Rupture of the Membranes. (*Il raccoglitore medico*, Forli, vols. v. and vi., 1893.) By Dr. Clemente Turbil.

In a series of one hundred and seventy cases of premature rupture of the membranes, the author found the great proportion of 34.3 per cent. of uterine inertia, and seven other cases in which this lack of contractile power was accompanied by an irritable state of the uterus. Secondary hemorrhage occurred in 14.7 per cent., while hemorrhage due to placenta prævia must be accounted for as an almost certain complication, because, in that event, the premature rupture of the membranes is almost always constant. The latter also favors the introduction of infectious agents and of septic endometritis.

The labor terminated without accident in 69.13 per cent. of the cases, and the necessity of practising some kind of operation, more or less serious, either for the mother or for the child, occurred in 30.86 per cent. of the series. The condition of the mother was generally very good, having had but seventeen per cent. of complications, which may in part be attributed to other concomitant causes. The prognosis as to the life of the child was very bad, due to the superabundance of blood in the veins, in consequence of the protracted labor, to the premature detachment of the placenta, and the compression either of the head or of the umbilical cord.

The prolapsus of the cord was observed thirteen times in the whole series of one hundred and seventy cases; the twisting of the same around the neck of the child occurred in 11.62 per cent. of the cases. The child died asphyxiated in 12.20 per cent. of the total of cases, and by embryotomy 8.13 per cent.; 9.88 per cent. of those born without breathing were restored to life.

Compression of the Cord Twisted around the Neck in a Case of Posterior Parietal Inclination of the Head. (*La rassegna di scienze mediche*, Modena, June, 1893.) By Dr. Giuseppe Roncaglia.

This case shows as true the theory of the author (explained with clinical and experimental proofs in his paper, published in 1891, in the *Annali di ostetricia e ginecologia*) regarding compression of the umbilical cord twisted around the neck of the child as due to a strong flexion or to an exaggerated extension of the head. Dr. Roncaglia had no obstacle to delivery in this case, the compression lasting but a short time, but the child was born in a state of asphyxia, the author having had great difficulty in restoring him to life.

The writer says he has experimentally ascertained that the compression of the vessels of the cord is most serious when the umbilical vein forms small spirals on the surface of the cord, or when it makes an almost complete turn every four centimetres on the surface of that part of the cord which is twisted around the neck.

BOOK REVIEWS.

Clinical Gynæcology: a Hand-Book of Diseases Peculiar to Women. By Thomas More Madden, M.D., F.R.C.S.E., Obstetric Physician and Gynæcologist to the Mater Misericordiæ Hospital, Dublin, etc. With 259 illustrations. Philadelphia: J. B. Lippincott Company, 1893.

This book contains the results of the writer's experience, extending over a quarter of a century, and is very nearly couched in the words employed in the instruction of his hospital classes. Frequently repeated requests for the book have led to its publication. It reads smoothly and deals practically with the subject in hand. Illustrations add to the clearness of the text wherever necessary, and one feels, in reading the book, that the patient is really before one, and that the operation which is being described is actually in the course of performance. Methods of examination, the application of pessaries, menstruation and its disorders, and the various ovarian tumors are described with especial thoroughness. Many practical points are given in regard to the differentiation between certain ovarian growths.

The author has handled his subject in a thoroughly efficient manner, and much valuable information is given in regard to the diseases peculiar to women. While there is not much of new material in the book, it is a thoroughly reliable volume, and in every way up to the times.

A Practical Treatise on Materia Medica and Therapeutics, with Especial Reference to the Clinical Application of Drugs. By John V. Shoemaker, A.M., M.D., Professor of Materia Medica, Pharmacology, Therapeutics, and Clinical Medicine, and Clinical Professor of Diseases of the Skin in the Medico-Chirurgical College of Philadelphia, etc. Second Edition. Revised. In two royal octavo volumes. Philadelphia: The F. A. Davis Company, publishers, 1914 and 1916 Cherry Street.

Eminently practical in handling the subject, the author presents a work which will appeal most strongly to those medical men whose privilege it has been to attend the writer's course of lectures. Volume I. deals with such general subjects as Materia Medica, Pharmacy, Prescription-Writing, Electricity in Medicine, Diet in Disease, and the like, while Volume II. is devoted more especially to the description of drugs and their uses in medicine. No very definite arrangement has been followed in the classification of the work, and in this respect it does not compare favorably with more scientific and elaborate books on therapeutics.

The physiological action of drugs is but tersely stated, and no arguments are advanced to demonstrate why certain drugs have certain specific virtues. The work presents little or no original research.

That a second edition of the book has become necessary proves that its usefulness has already been appreciated, and therefore needs no further comment.

HAND-BOOK OF LOCAL THERAPEUTICS. By Richard H. Harte, Arthur Van Harlingen, Harrison Allen, and George C. Harlan. Edited by Harrison Allen, M.D. Philadelphia: P. Blakiston, Son & Co., 1012 Walnut Street. 1893.

The want of a book of this character has long been felt, as in text-books devoted to therapeutics the local action of drugs has received but little attention, or has been given a subordinate place on account of more striking physiological effects.

Each remedy has been thoroughly described by different men who have had large practical experience in the several specialties with which they deal. Each drug has been taken up in alphabetical order, and a description given of its pharmaceutical properties, as well as its physiological effect and value in local treatment. No imperfectly-tested new drugs have been endorsed, and only those which have stood the test of time are recommended. The book embodies the results obtained by men of experience, and should prove a valuable addition to the library of the general practitioner.

THE HEALTH RESORTS OF EUROPE. A MEDICAL GUIDE TO THE MINERAL SPRINGS, CLIMATIC, MOUNTAIN, AND SEA-SIDE HEALTH RESORTS. MILK, WHEY, GRAPE, EARTH, MUD, SAND, AND AIR CURES OF EUROPE. By Thomas Linn, M.D. With a Preface by A. E. Sansom, M.D., F.R.C.P. London: Henry Kimpton, 82 High Holborn, W. C. 1893.

This concise little book is intended for non-medical as well as medical men, and will be of great assistance in aiding invalids to arrive at a decision as to the best place to visit for any particular malady. Care has been given to the preparation of a list of all the English and American physicians and specialists who reside and practise in Europe. The shortest and best routes from London or Paris to the various localities named are given, with the distances, first-class fares, and the best hotels in each place.

This guide is strictly independent, and subservient to no moneyed interests. It is proposed to publish a new addition yearly, in which all changes will be noted. It should prove a very useful addition to the library of the climatologist.

A MEDICAL HAND-BOOK FOR THE USE OF PRACTITIONERS AND STUDENTS. By R. S. Atchison, M.D., C.M., F.R.C.P.E., Edinburgh. With numerous illustrations. London: Charles Griffin & Co., Limited. Philadelphia: J. B. Lippincott Company. 1893.

A clinical classification of diseases is followed, and they are discussed in groups. In the treatment of disease but few of the newer remedies have been mentioned, because of the fear that continued trial of some remedies now high in favor will prove their utter worthlessness. This little book will be very useful in reviewing the various subjects of which it treats. Its information is stated in a few words, and much help can be obtained for the memory by the several tables and diagrams which accompany the text. The description of the urinary examinations is particularly clear, and the little work deserves nothing but praise.

CHOREA, OR ST. VITUS'S DANCE, IN CHILDREN. By Octavius Sturges, M.D., F.R.C.P., Senior Physician to the Hospital for Sick Children, and to the Westminster Hospital, London. Second Edition. Revised and partly rewritten. London: John Bale & Sons, 87–89 Great Titchfield Street, Oxford Street, W. 1893. Price five shillings.

The first part of the work presents a description of the disease and of the several theories which have been advanced to explain it. The author deals with these theories in the light of admitted facts, and he concludes with an account of that

view of the pathology and treatment of the affection which a full consideration of its phenomena seems to suggest. A number of illustrative cuts are given.

It has been the purpose of this little book to show throughout that chorea is in a large measure a functional disease due to preventable causes. The writer deals with his subject in a scholarly way, and the book makes very interesting reading. It should appeal not only to the medical profession, but also to the great majority of the better-informed people of the community, who should be conversant with this malady in order to prevent its possible occurrence among their own children.

Manual of Practical Medical and Physiological Chemistry. By Charles E. Pellew, E.M., Demonstrator of Physics and Chemistry in the College of Physicians and Surgeons, New York, etc. New York: D. Appleton & Co. 1893.

The book deals not only with physiological chemistry, but with the food-stuffs and other products of assimilation, as well as with the different fluids and tissues of the body, and, whenever possible, particular attention has been paid to the latest clinical tests. Tests for breast-milk are described in full, as well as tests for the gastric juice. The aid of the microscope is often brought into play.

Part I. deals with the carbo-hydrates; Part II. with the fats and oils; Part III. with the proteids of albuminous bodies; Part IV. with the inorganic constituents of the body; Part V. with water analysis; Part VI. with the animal tissues of the body; Part VII. with the digestion; Part VIII. with the urine, and concludes with Part IX. on the microscopical examination of the urine. The text is illustrated, wherever illustrations will prove of use, by carefully-selected drawings and photo-micrographs. The book is thoroughly in touch with the recent advances in this particular branch of medical science, and it can be heartily recommended to the profession. The information embodied in its pages is briefly stated, and it will form a ready reference-book for the subjects with which it deals.

Hand-Book of the Diagnosis and Treatment of Diseases of the Throat, Nose, and Naso-Pharynx. By Carl Seiler, M.D., Instructor in Laryngology and Lecturer on Diseases of the Upper Air-Passages in the University of Pennsylvania, etc. Fourth edition, thoroughly revised and greatly enlarged. Illustrated with two lithographic plates, containing 10 figures, and 107 engravings. 12mo, 414 pages. Cloth, $2.25. Philadelphia: Lea Brothers & Co., 1893.

This little book is eminently practical, and will prove of interest not only to the specialist but to the general practitioner as well. It deals with the subjects in a clear and distinct manner, and the text is copiously illustrated with diagrams and colored plates. So little attention is paid ordinarily to the examination of the larynx that the need of such a book has long been felt. By consulting its pages any one can learn the necessary manipulations, and, by a little practice, soon become expert in the use of the laryngeal mirror, a method of examination too often neglected.

The anatomy of the larynx is explained with especial care, and the operative procedures for various diseases of the throat, tonsils, etc., are carefully explained. Approved methods of treatment are dealt with in a very satisfactory way, and all the most useful remedial agents are described.

A Manual of Medical Treatment, or Clinical Therapeutics. By I. Burney Yeo, M.D., F.R.C.P., Professor of Therapeutics in King's College, London. In two 12mo volumes containing 1275 pages, with illustrations. Complete work, cloth, $5.50. Philadelphia: Lea Brothers & Co., 1893.

The author's aim has been, wherever possible, to deduce rational indications for treatment from an examination of the pathological nature, clinical course, and characteristics of the disease under discussion. The work has occupied the author's time

for some years, and the larger portion of the book is founded on clinical lectures which were delivered at the King's College Hospital.

Volume I., part 1, deals with the treatment of diseases of the organs of digestion; part 2, diseases of the heart and blood-vessels, and of the blood and ductless glands, and part 3, diseases of the organs of respiration. Volume II., part 4, deals with phthisis; part 5, diseases of the liver; part 6, diseases of the urinary and renal functions; part 7, diseases of the nervous system; part 8, constitutional diseases; part 9, specific and infective diseases. A complete index accompanies Volume II., and makes any reference to the text at once easy and thorough. Only remedies which have stood the test of time are recommended, and the author cautions against the indiscriminate use of new remedies. Stress is laid upon preventive measures when they are possible. Each disease has been carefully considered, and much valuable information condensed within a few pages.

In discussing the treatment of typhoid fever reference is made to Hare's elaborate "System of Practical Therapeutics" on page 641. The reference here should be to volume two, page 307, instead of volume three, page 307, as it appears in the footnote. Such errors are apt to creep into any book, however, even with the most careful proof-reading, and the author cannot be censured for such a slight error.

Books such as these repay even the best-informed when their pages are consulted, and demonstrate upon what an increasingly rational basis the study of medicine has been placed. As a book of reference this work will prove a valuable addition to the library of every practitioner.

A Chapter on Cholera for Lay Readers: History, Symptoms, Prevention, and Treatment of the Disease. By Walter Vought, Ph.B., M.D., Medical Director and Physician-in-Charge of the Fire Island Quarantine Station, Port of New York; Fellow of the New York Academy of Medicine, etc. Illustrated with colored plates and wood-engravings. In one small 12mo volume, 110 pages. Price, 75 cents net. Philadelphia: The F. A. Davis Co., Publishers, 1914 and 1916 Cherry Street.

This book was intended to give practical information in regard to this dread disease, and to forewarn and forearm the people who were most apprehensive in regard to its approach. The subject is treated in a way that all may understand. No previous knowledge of medicine is essential to a thorough comprehension of the subject. It is a primer on cholera, and those who read its pages should soon become conversant with the history of this dread malady and the method of its attack.

An excellent illustration of the cholera bacilli accompanies the text, and demonstrates very forcibly the appearance of this germ.

Diseases of the Lungs, Heart, and Kidneys. By N. S. Davis, Jr., M.A., M.D., Professor of the Principles and Practice of Medicine in the Chicago Medical College. Philadelphia and London: The F. A. Davis Co., Publishers, 1893.

This book comprises the lectures delivered by the author for several years past in the Chicago Medical College, carefully elaborated. The endeavor has been to describe as clearly and concisely as possible the subjects treated of. Especial attention has been paid to treatment. It is a valuable addition to the physician's and student's ready-reference series, but can in no sense be said to supply the demand for more elaborate books on the subject. To the student it will be especially useful in reviewing the subjects of which it treats, such as diseases of the bronchi, lungs, and pleura, and diseases of the heart and kidneys.

Introduction to the Catalogue of the Collection of Calculi of the Bladder. By Sir Henry Thompson, F.R.C.S., M.D., Surgeon Extraordinary to His Majesty the King of the Belgians. London: J. and A. Churchill, 11 New Burlington Street, 1893.

This collection includes upwards of one thousand calculi, besides foreign bodies removed by this eminent surgeon, who has contributed so largely to the literature of bladder surgery and diseases of the genito-urinary system. The collection was presented in 1892 to the Hunterian Museum of the Royal College of Surgeons in London, where it is now deposited, together with copies of the Catalogue and Introduction. Works of this kind cannot be too highly praised, as they embody the results of infinite labor and painstaking, and by such methods the results of experience are clearly set forth, and opportunities for research and the comparison of statistics are put within the reach of all. This little book is a model of its kind.

A Dictionary of Medical Science. Containing a full explanation of the various subjects and terms of Anatomy, Physiology, Medical Chemistry, Pharmacy, Pharmacology, Therapeutics, Medicine, Hygiene, Dietetics, Pathology, Surgery, Bacteriology, Ophthalmology, Otology, Laryngology, Dermatology, Gynæcology, Obstetrics, Pediatrics, Medical Jurisprudence, and Dentistry, etc., etc. By Robley Dunglison, M.D., LL.D., late Professor of Institutes of Medicine in the Jefferson Medical College, of Philadelphia. Edited by Richard J. Dunglison, A.M., M.D. New (twenty-first) edition, thoroughly revised, greatly enlarged and improved, with the Pronunciation, Accentuation, and Derivation of the Terms. In one magnificent imperial octavo volume of 1181 pages. Cloth, $7.00; leather, $8.00. Philadelphia: Lea Brothers & Co., 1893.

The introduction of so many new words into medical phraseology within the last decade has made the production of new dictionaries of paramount importance to the medical student and practitioner. While there are a number of books which have their claims to attention, none meet the demand more satisfactorily than Dunglison's Medical Dictionary, which has been the standard authority in medical terminology for more than half a century. Forty-four thousand new words have been added to the present edition (the twenty-first) in order to keep the book in touch with the times. Obsolete terms have been excised, and yet the present volume contains upwards of one hundred pages more matter than its predecessor.

Pronunciation is indicated by clear, phonetic spelling, and the derivations have been added for most words in order to facilitate their ready comprehension. Latin derivations seem to predominate over the Greek.

As is usual with such works at the present day, the text is enriched by tables of information, and the symptoms of disease, poisons and their antidotes, doses of remedies, etc., are carefully detailed. Some such work is indispensable to the library of the student and practitioner. By the recent additions to its pages this edition of Dunglison's Dictionary has been brought thoroughly up to the times, and it gives every promise of maintaining the high standard established by its predecessors.

An American Text-Book of the Theory and Practice of Medicine. By American Physicians. Edited by William Pepper, M.D., LL.D., Provost and Professor of the Theory and Practice of Medicine and Clinical Medicine in the University of Pennsylvania. In two volumes, copiously illustrated. Volume I. Philadelphia: W. B. Saunders, 913 Walnut Street, 1893.

Volume I. contains articles by such well-known men as John S. Billings, Francis Delafield, R. H. Fritz, James W. Holland, E. D. Janeway, Henry M. Lyman, William Osler, William Pepper, W. Coleman Thompson, William H. Welch,

James T. Whittaker, James C. Wilson, and Horatio C. Wood. The mere mention of these names insures a thorough consideration of the subjects under discussion.

Disinfection, proper food, exercise, clothing and bedding, occupation, habitation, water-supply, disposal of sewage, etc., are all carefully considered. The paragraphs on physical development are pregnant with good sense, and a warning is raised against young men taking so much exercise in their youth, as college men are so apt to do, that it cannot be maintained in after-years, the heart thus being placed in serious danger of disease before it can readjust itself to more sedentary conditions.

In speaking of the treatment of typhoid fever, Dr. Pepper lays especial stress on cold bathing and the like, and warns against the excessive use of drugs. Dr. Wood's article on "Nervous Diseases" is so eminently clear and practical as to be thoroughly characteristic of the writer.

This volume is, in a word, up to date, and embodies all the more recent advances which have been made in the study of the bacterial origin of various diseases, and the practical deductions which have been made from these advances as to the prevention and cure of disease. Much new matter has therefore been added in regard to the treatment of disease, such as the injection of blood serum from immune animals, while methods of diagnosis are given the most minute and careful attention, so that the possessor of this book may learn all the recent methods of investigation without consulting the special works on the subject.

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ORIGINAL COMMUNICATIONS.

PSILOSIS (?) *PIGMENTOSA.*[1]

BY CUTHBERT BOWEN, M.A., M.D.,
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During the past four years I have seen so many cases of chronic diarrhœa—often ending fatally—in which a peculiar inflammation of the mucous membrane of the mouth is accompanied by a clearly-defined symmetrical pigmentation of the dorsal aspects of the hands and feet, that I have been forced to the conclusion that this triple association is not an accidental one, but is pathognomonic of an epithelial disease *sui generis*, possibly peculiar to Barbadoes, or else closely allied to a specific disease of the alimentary canal which has its habitat in the East Indies, and has been accurately described by Dr. Thin, of London, as "psilosis linguæ et intestini."

The main features of this latter condition, as described by Dr. Thin, are "inflammation of the mucous membrane of the mouth and alimentary canal and chronic diarrhœa, portions of the tongue and the whole of the œsophagus being denuded of epithelium, and the entire mucous membrane of the ileum found in a shrunken, wasted, and sclerosed condition." The Dutch physicians of Java recognized the condition as possessing characteristics sufficiently unique to distinguish it from the ordinary chronic diarrhœas and dysenteries prevalent in tropical countries, and gave it the name of "sprue," a term also employed in certain parts of Scotland to designate aphthous stomatitis.

[1] Read before the Pan-American Congress, Section on General Medicine, Washington, D.C., September 8, 1893.

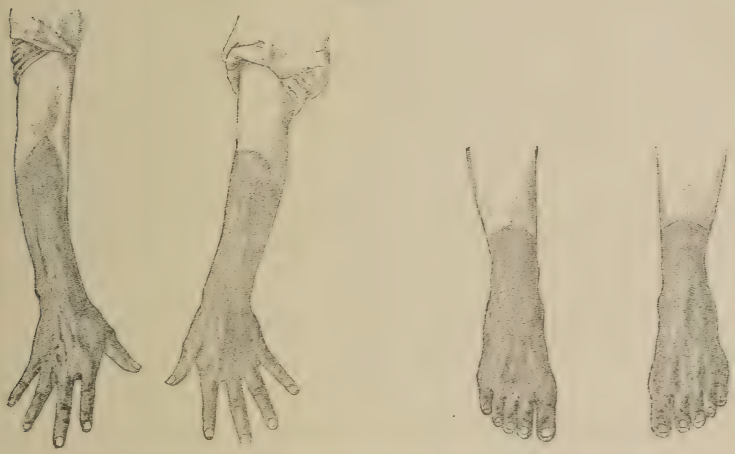
Like many terms still in use, the word "sprue" carried with it no indication of the nature of the disease; and in order to emphasize the *peeled* condition of the mucous membrane of the alimentary canal always found in cases of "sprue," Dr. Thin suggested the adoption of the word *psilosis* instead.

This term, which is derived from the Greek ψιλόω (I pluck, make bare, or strip), simply calls attention to the state of the tongue and mucous membrane,—*i.e.*, that they are stripped or denuded of their epithelium, a symptom not confined to "sprue," but seen in cancer of the pyloric orifice, dysentery, and the final stages of exhausting intestinal maladies. Hence I take it that any condition in which the tongue and mucous membranes are found bare of epithelium may without impropriety, so far as the etymology of the word is concerned, be spoken of as a *psilosis*. It is in this limited sense that I have ventured, in the absence of any etiological data from which to elaborate a more appropriate or original nomenclature, to borrow from Dr. Thin's vocabulary the term *psilosis* as a temporary heading under which to introduce the disease I am about to describe, it being distinctly understood that I do not believe that in Barbadoes we are dealing with the identical disease to which the term *psilosis* in its technical adaptation by Dr. Thin, strictly speaking, belongs, although *clinically* there is a strong resemblance between their respective alimentary manifestations. The difference in the tongues is marked, and there appears to be no accompanying cutaneous pigmentation in Dr. Thin's psilosis. At any rate, the qualifying adjective "pigmentosa" will prevent confusion of the condition which forms the subject of this paper with the class of cases recognized as psilosis in the East Indies, and at the same time call attention to one of the most prominent features of the former.

The external manifestations of psilosis pigmentosa, as we see it in Barbadoes, are a crimson, peeled condition of the mucous membrane of the tongue and buccal cavity. The lips externally are bright red and especially vivid in black people. In mulattoes the contrast with the surrounding skin is less marked, while in the latter the pigmentation on the dorsum of the hands and feet is naturally more pronounced. The tongue, when protruded, assumes a long, narrow, pointed shape. Its papillæ are elevated, and aphthous ulcers are often, though not invariably, found on its lateral margins. Saliva constantly dribbles from the mouth, the patient filling cup after cup, both by day and night. This salivation, Dr. Thin tells me, does not occur in East Indian psilosis. Partly owing to the rawness of the mouth and partly to the constant accumulation of the saliva, speech is both painful and difficult, the secretion having to be swallowed or expectorated with every sentence. When the disease attacks the robust, the general appearance of the patient may be healthy, but in the later stages the condition is one of extreme emaciation. The redness of the lips and tongue can be recognized from a considerable distance. In addition to these alimentary symptoms, the backs of the hands only in some cases, in others

the dorsal aspects of the feet as well, are seen to have taken on a coal-black pigmentation. In light mulattoes it is more marked. It often assumes the form of a gauntlet. The pigmentation of the extremities, in the only two instances in which I have seen the disease in *white* persons, was of the hue which results from painting the skin with tincture of iodine. As will be seen on reference to the accompanying illustration (Fig. 1), the pigmentation

FIG. 1.



Pigmentation of the hands, arms, feet, and legs in psilosis pigmentosa.

is very symmetrical, its limits being almost identical on the two sides of the body. It often extends no higher than the flexures of the wrists, but in the majority of cases reaches the level shown in the drawings. The symmetry of these lesions is most striking and highly suggestive of syphilis; and, indeed, in the first few cases which came under my notice, there was undoubtedly a syphilitic accompaniment.

Latterly, however, I have been able in several cases entirely to eliminate syphilis as an etiological factor. As regards the etiology of this curious disease I have at present no suggestions to offer. The pathological process giving rise to the foregoing picture is by no means clear. Its clinical features are, however, unique, and will, I think, best be appreciated by a record of a few typical cases which I have selected out of some thirty which have presented themselves to my notice at the General Hospital, Barbadoes. The features of the disease are unmistakable and constant. The only variation is in their severity.

On October 23, 1890, a black woman, Mary Lynch, aged fifty, was admitted to the General Hospital in what appeared to be the final stage of *psilosis pigmentosa*. Her family history was good. She had been the mother of ten children, eight of whom, at the time of her admission, were dead. The fourth and tenth child, aged fifteen and nine respectively, were alive and well. She had never had an abortion or premature labor. There was no history of rheumatism, alopecia, or sore throat. Her reputed

husband had always been a very healthy man, and was at the time cohabiting with another woman, by whom he had several other healthy children. As far as I could gather from her statements, there had not been any syphilitic taint in any of the children. Still, the fact of eight out of ten being dead looked suspicious, and although I could detect in the mother no evidence of syphilis, I placed this case at the time in the category of "doubtful cases,"—*i.e.*, among a certain number in which I was unable absolutely to exclude syphilis as an etiological factor. According to her own account she had always been a healthy woman until two years previous to her admission, when she began to have dyspeptic symptoms,—*i.e.*, a sense of distention at the epigastrium, eructations of gas, and water-brash, the fluid eructated leaving a burning sensation in the pharynx and down the œsophagus. With this there has been an increased secretion of saliva and irregularity of the bowels. For some weeks there would be diarrhœa and then spells of constipation. Finally, there had been constant diarrhœa, salivation, and loss of flesh.

On her admission, this woman's condition was most pitiable. She was terribly emaciated, worn almost to a shadow, the lips and entire mucous membrane of the mouth glazed and red. Confluent patches of aphthæ covered the tongue and lining mucous membrane of the mouth. The tongue was scarlet, perfectly raw, devoid of moisture, and, when she fell asleep, apt to adhere to the gums and roof of the mouth. Swallowing of the blandest materials caused most excruciating pain. She had constant diarrhœa of a grayish, frothy character, the passages so numerous that no record could be kept of them, and so offensive that the patient had to be isolated. The backs of the hands, as far as the flexures of the wrists, were pigmented. With the gradual amelioration of the symptoms the pigmentation wore off, and when in six months' time she left the hospital, there were no traces of it to be seen.

The treatment in this case was purely empirical. Absolute milk diet, with flaxseed tea to moisten the tongue. Bismuth, pepsin, and opium, chlorate of potassium, turpentine, and nepenthe, and extract of coto, were all tried in various combinations, but without apparent success. Finally, on February 10, Kirby's mixture was tried, and coincidently with its administration there appeared to be a marked improvement. By March 12 she had so far recovered her digestive powers as to be able to assimilate raw chipped beef treated with hydrochloric acid, and on March 23 she was given the "full" diet of the hospital. The points worthy of note in this instance were the apparent amenability to dietary and therapeutic measures of a case in such an advanced stage, which is the more puzzling when the severity of the pathological lesions in the intestines in similar cases is considered. I have heard nothing of the woman since she left the hospital, but I cannot believe her relief was more than temporary, and I suppose she will return to the hospital when the final outbreak of the disease comes on. From this case we also get a typical picture of the third stage of *psilosis pigmentosa.*

Death invariably ends the scene in a short time. I have not since seen a case in that advanced stage recover.

October 10, 1891, a healthy-looking mulatto woman, aged fifty-four, came to the Out-Patient Department of the General Hospital, complaining merely of constant eructations of gas and salivation. She had been suffering for two months in this way, but had had no medicine. The salivation in cases of *psilosis pigmentosa* bears no resemblance to that caused by mercury, and is not likely to mislead any one. This woman's general condition, family history, and previous history were excellent, with one exception. She was a nurse, the daughter of two well-known, respectable married people, and had had thirteen brothers and sisters. All her brothers and sisters had been quite healthy. Both her parents had lived to extreme old age. Twenty years previously to my seeing her, the elder Dr. Manning had amputated her left breast. (Cancer?) With this exception, she had never had a day's illness. Her tongue was narrow and pointed, slightly glazed, and of the typical scarlet color. The lining of an ordinary red pill-box is approximately the color of a psilosis pigmentosa tongue in the acute stage. Saliva was being constantly secreted so as to interrupt her conversation, and she complained of her intestines feeling "as though a pot was boiling inside them."

At first there was no diarrhœa, but great irregularity in the movements. A fortnight before her admission she stated her hands had turned black on the dorsal aspects, but at the time of her admission they were normal again. She stated that they had been black two months previously to that, and had similarly become normal by the blackened skin peeling off. This often occurs, and in recurrent cases patients assure me they can always associate the acuteness of the diarrhœa with the increased pigmentary deposit on the hands and feet. On her admission she was placed on a milk and arrow-root diet, and given a mixture of bismuth and pulv. kino comp.

This, however, failed to check the diarrhœa entirely. Rectal injections of nitrate of silver were also tried, and by November 10 she had so far improved as to be able to eat broth diet, and by November 19 full diet with meat. On December 9 the diarrhœa came on again, and from this time her progress was rapidly downward. No medication seemed to check the constant diarrhœa, and she died of exhaustion on the 31st of December,—*i.e.*, in eighty-two days from the time she presented herself in the out-patient department, complaining only of dyspeptic symptoms.

In the later stage of the disease the symptoms were identical with those of Mary Lynch, and need not be recapitulated. The lips fiery red, the tongue raw, adhering to the inflamed buccal cavity when not artificially moistened, and yet saliva constantly pouring from the mouth so as to fill many cups in a day; the body wasted to a shadow, and yet no physical signs to indicate trouble in any other organs than the intestines. At no time was there any vomiting, fever, or headache. In this case the post-mortem appearances, as in all the others, were in accord with the clinical features, and

will be described later on, together with the microscopical appearances of the intestine, which are identical in all cases.

This woman had a history of possibly cancer of the breast, and in a great many of the cases which I have seen there has been great difficulty in eliminating syphilis, cancer, leprosy, tubercle, etc., as possible antecedent conditions. I will therefore omit the details of all but those in which I feel certain of the disease being purely idiopathic.

F. I., aged twenty-three, was sent to me by Dr. Bannister, in April, 1892. He had been for some time under treatment for chronic irregular diarrhœa. He was a healthy-looking young man and presented the typical signs of psilosis pigmentosa,—*i.e.*, the backs of his hands to the elbows were pigmented and the tongue long, narrow, pointed, glazed, and scarlet. I made a note of his condition, and he returned to Dr. Bannister's care.

I then lost sight of him until August 1, when he was admitted to the hospital. He was placed on a milk diet, and given nitrate of silver and opium in pill form. By August 9 his diarrhœa had so far improved that he was given middle diet, and a week later full diet. On September 13 he had diarrhœa, and was put on milk diet exclusively. He was also given a mixture of bismuth, tincture catechu, spirits chloroform, and infusion of krameria. On this he seemed to improve, and September 30 he could take small quantities of chicken-tea. On September 30, as the diarrhœa seemed to linger on, he was ordered injections per rectum of sulphate of copper (gr. v–℥i) after each movement. By October 11 his diarrhœa was better, apparently, and his diet was changed to rice, milk, chicken, bread, and English potatoes. From November 2 quinine and arsenic were given him as a tonic. November 19 he was given full diet, but two days later, as there were symptoms of diarrhœa, he was placed on absolutely milk diet, and was kept on it until his death on February 17, 1893, the usual astringent drugs being tried in succession, but to no purpose. At the time of his death he had been in the hospital seven months consecutively. I thus had an opportunity of watching a case of this curious disease from its inception in a healthy young man until its fatal issue in eleven months' time. The features of the disease in its later stages were identical with those recorded before. At the post-mortem, which I made the day following his death, I found the condition of the organs as follows: the lungs were pale, white, friable, and apparently free from any tuberculous infiltration. Microscopically a slight catarrhal bronchitis was revealed, which during life had given evidence of its presence by a few moist râles, but otherwise the lung was perfectly healthy. There were no pleuritic adhesions on either side. The pericardium and heart were normal and all the valves competent. The liver appeared smaller than normal, but not to a greater extent than would be accounted for by the general wasting of the body. There were no signs of gummata about it. The spleen was somewhat softened, the œsophagus was reddened, apparently denuded of its epithelium, while the stomach was normal. The kidneys were unaltered. The intestines were very thin, white,

and transparent looking, the small intestines at intervals of a few feet being puckered, as though they had been ligatured at these spots (Figs. 2, 3, and 4).

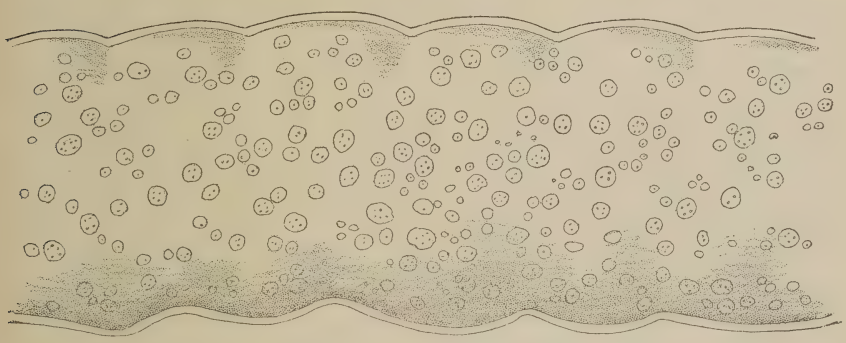
FIG. 2.

THE INTESTINES IN "PSILOSIS PIGMENTOSA."—The ileum as seen from the outside, showing two constrictions at A and B.

FIG. 3.

The ileum as seen from the inside, showing the annular ulcerations at A and B.

FIG. 4.

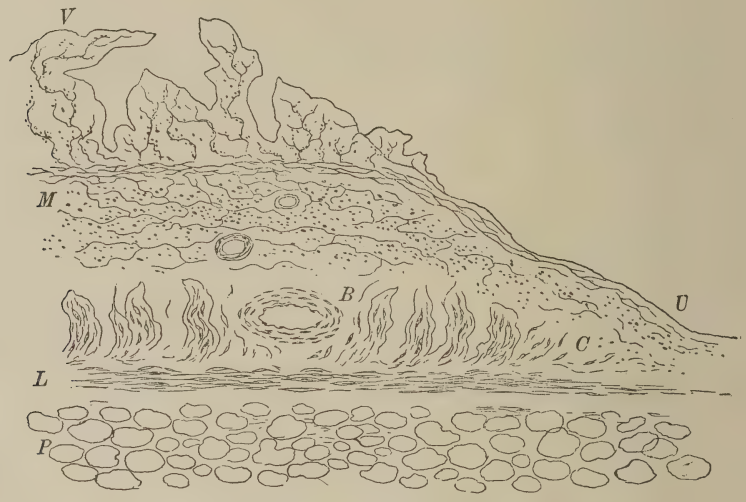


Interior of the large intestine, showing the extent of the punctiform ulceration.

This puckering corresponded to a circular ulceration on the inner side of the gut which had destroyed the entire mucous membrane at the intervals indicated above. The remaining portion of the intestine between the sides of this annular ulceration was highly inflamed. The large intestine was a mass of ulceration, being spotted with tiny circular ulcers varying in size from a pin's head to a split pea. The ulceration was very intense in the rectum, but presented none of the characteristics of syphilis. Microscopically the villi of the small intestine were found to be entirely devoid of their columnar epithelium. This is well shown in the drawing (Fig. 5). Towards the seat of the annular ulceration they diminished gradually in size. The ulcer itself

extended only partly through the submucous tissue. The glandular structure of the intestine was entirely destroyed, its place being taken by a purely adenoid reticulum infiltrated with leucocytes. The circular muscular fibres gradually disappeared as they approached the annular ulcer and were finally lost, the submucosa, greatly thinned, forming the floor of the ulcer. As tubercular ulceration often runs, as in these cases, transversely round the

FIG. 5.



MICROSCOPICAL APPEARANCE OF THE SMALL INTESTINE IN "PSILOSIS PIGMENTOSA."—*V*, villi entirely denuded of epithelium; *U*, site of annular ulceration, the villi entirely destroyed; *B*, blood-vessel in circular muscular coat, showing thickening of wall; *C*, circular muscular coat gradually disappearing; *L*, longitudinal muscular coat; *P*, peritoneal fat; *M*, submucosa with entire loss of gland structure.

bowel, it may be as well to draw attention to the fact that the villi in tubercular ulceration are enlarged and infiltrated and the circular muscular fibres swollen and enlarged. The peritoneal coat also is thickened and vascular —a condition not observed in my cases. Giant cells would of course be found in the submucosa, the tubercular nodules extending into the muscular coat.

Besides this, there are no indications of psilosis pigmentosa being clinically like tuberculosis.

While the pathological process underlying cases of psilosis pigmentosa is very evident under the microscope, the etiology of the disease is obscure. Neither age, sex, nor occupation can be considered as etiological factors. The earliest age at which I have seen the condition is three years, yet the pigmentation of the hands and the scarlet tongue were as well marked as in the adult. In the majority of cases, however, my patients have been adults. It occurs more often, I think, in women than in men, but I have not seen enough cases to speak positively on the subject. The disease is liable to intermissions, but may run its course without abatement in six or seven months.

In constitutions previously undermined by syphilis, leprosy, tuberculosis, or alcoholism, its course is more rapid.

Until further researches reveal the cause, treatment can only be palliative. In mild cases absolutely milk diet and intestinal astringents will at any rate not aggravate the disease. Nitrate of silver and opium by the mouth and rectal injections of the sulphate of copper seem to be indicated at times; but so far as my therapeutic knowledge goes we have no remedy capable of restoring the epithelium to an intestine *psilosed* to the extent shown in the drawings. As Dr. Thin aptly remarks to me in a private letter, "*We are only now beginning to distinguish separate tropical intestinal affections which have been all roughly jumbled up together on account of diarrhœa, an abnormal tongue, digestive symptoms, and emaciation being common to all.*" In an association of medical men in which the tropics are largely represented, I trust much additional light may be thrown on this at present obscure condition.

REPORT OF TWO YEARS' WORK IN ABDOMINAL SURGERY AT THE KENSINGTON HOSPITAL FOR WOMEN, PHILADELPHIA.

BY CHARLES P. NOBLE, M.D.,
Surgeon-in-Chief.

THE following report embraces all the cases of abdominal section done in the Kensington Hospital for Women during the past two fiscal years. I shall briefly discuss the general features of the work, and then confine myself to certain points which I believe are of general interest. There have been ninety-nine (99) cœliotomies, of which ninety-seven (97) have been done by myself, and two by the assistant-surgeon of the hospital, Dr. Applebach. There have been five deaths, and it is gratifying to be able to show that not one of these was due to infection on the part of the operator. The rule has been followed in these cases to operate for disease only, and a study of the annexed tables will show that almost without exception the patients were suffering from gross lesions. This method commends itself to all operators of sound judgment, as thereby there will be no future regrets because of the removal of organs not hopelessly diseased. The operations were done because the women were invalids and incurable otherwise, or else to save them from impending death.

Early Operation.—It is still necessary to urge upon the profession the necessity of early operation in cases of serious disease of the pelvic and abdominal organs. The old policy of palliation and delay until the disease was approaching a fatal termination, before resorting to operation, is

still claiming its many victims. This policy is the cause of most of the deaths in the hands of abdominal surgeons, and also of most of the partial successes which follow operations. The profession has at last accepted the teaching that delay is worse than bad in the treatment of ovarian tumors, and now it is universally conceded that cases of ovarian tumor should be submitted to operation so soon as a diagnosis is made. Tapping and all other forms of palliative treatment have fallen into deserved disrepute. But this is not the case with pyosalpinx, abscesses of the ovaries, extra-uterine pregnancy, and hydro- and hæmatosalpinx. There is no doubt in the minds of those who see the most of these conditions, that the proper treatment of them is their early removal by cœliotomy; but this teaching has not been thoroughly accepted by the profession, therefore the necessity for repeatedly insisting upon it. Without operation, it is only by accident that such patients ever become well, and those who do become well run many risks which could be avoided by prompt operation,—risks far exceeding those of the operative treatment. Delay in operating in this class of cases brings these unfortunate sufferers to the condition of chronic invalidism. These are the patients that have been in bed for months or years with repeated attacks of peritonitis; and often, under the too prevalent method of management, they come into the hands of the surgeon emaciated wrecks, pus-poisoned, with depraved nutrition, and with a shattered nervous system, and perhaps with crippled vital organs. These are the patients that die after operation, should this prove difficult and tedious. But worse than that, these are the patients who are not perfectly cured by operation, nor is it to be wondered at that they are not restored to perfect health. Habits of invalidism when long continued are hard to break up; lost nervous tone is difficult to restore, and emaciation beyond a certain point leaves a permanent impress upon the body. These reasons of a general character for the failure to cure all of these cases are sufficiently apparent; but in addition to them we have the local results of these diseases to contend with. Repeated attacks of peritonitis result in the agglutination of all the abdominal viscera contiguous to the pelvis. Bowels, omentum, bladder, and sexual organs become fused together. In cases of suppurative disease, the bowels contiguous to the pus-sacs are apt to become infiltrated with pus and their walls to undergo caseous degeneration, thereby giving rise in many cases to the occurrence of fecal fistula or to post-operative intestinal adhesions. Such cases, when of long standing, are especially difficult to deal with. The adhesions have become organized, making them difficult to break up, and also leaving extensive raw surfaces in the abdominal and pelvic cavities. It is not to be wondered at that post-operative adhesions form in some of these cases. When operated upon early the adhesions are not organized, and the exudate will disappear after the operation by absorption, and thus the peritoneum is left in a decidedly more normal condition.

The policy of delay works badly in every way. While this policy is

pursued, these poor women continue to be invalids; many of them die from intercurrent attacks of peritonitis, and those who live on, when finally they submit to operation, do so with lessened chances of recovery from the operation, and, unfortunately, also with greatly increased chances of but partial restoration to health. It is only by the resources of the greatest good judgment and therapeutic skill that many of these poor sufferers are restored to health by prolonged management after operation.

Yet those who style themselves conservatives take the result obtained in this very class of cases and use it as an argument against operative treatment. It is due to the cause of truth, that it be made plain that it is the teaching of those so-called conservatives which is responsible both for the deaths and the failures to cure in the class of cases under consideration.

The question of early operation in fibroid tumors is likewise of present interest. I can add my testimony to that of others, that the older teaching concerning fibroid tumors is very erroneous. The idea that these tumors are of a harmless nature, or nearly so, that they never cause death, and that they disappear at the menopause, comes grievously short of the truth. It is true that cases of fibroids of the uterus are met with, especially the subperitoneal variety, in which there are few symptoms due to their presence; they cause neither hemorrhage nor pressure; but such cases are exceptions. In the majority of cases women having fibroid tumors are invalids, either because of the hemorrhages due to the tumor, or because of pressure symptoms. In many cases, also, fibroid tumors are complicated by diseased uterine appendages, and in such cases the women suffer from the symptoms of both conditions. For some years after I began the practice of medicine, imbued with the teaching of that period, whenever I discovered a fibroid tumor I felt rather pleased, and would assure the patient that she should consider herself fortunate, because, as the tumor was not ovarian, it would be unnecessary to operate upon her. As my experience increased, however, I discovered that such patients were not so pleased as I was myself; the large majority of them were great sufferers either from hemorrhage or from pain, and this continuing for years made life a burden to many of them. It became apparent to me, also, that the teaching concerning the disappearance of fibroid tumors of the womb at the menopause was a mistake. In the first place, the menopause is usually postponed from five to ten years beyond its usual period; in the second place, I have seen numerous cases in which the fibroids grew very rapidly after the menopause; indeed, most of the women upon whom I have been obliged to do hysterectomy had reached or passed the menopause.

I am not yet ready to accept the proposition that every fibroid tumor should be removed as soon as it is discovered; but I am convinced that this plan of procedure would be much better than the one that has prevailed up to the present time. Granted that the rule is that the subjects of fibroid tumors become invalids for many years, even if they do not lose their lives, it follows that, if they can be safely relieved of their tumors, this is urgently

necessary to save them from weary years of suffering. It is difficult to estimate the actual danger to life of fibroid tumors, but it is not inconsiderable. If these tumors can be removed with approximately the same mortality, we have as an argument in favor of such removal the many years of suffering which thus will be prevented. At the present time hysterectomy is done only for the larger fibroids, and for those which are directly threatening the life of the patient; yet in the hands of our best operators, under these conditions, hysterectomy is done with a mortality approaching five per cent. Were the indications for the operation extended and these tumors removed when still small, I believe that this could be done with a mortality of not more than one or two per cent. This being the case, the benefits of operation should be stated to all women having fibroid tumors. I believe that most of them, when fully aware of what is to be expected from operation and without it, will elect to have their tumors removed while they are still small.

Drainage.—My practice with reference to the employment of drainage has considerably altered within the past two years. Prior to that time I drained ninety per cent. of my cases; hence I am able to speak of the results of drainage from the stand-point of experience. I do not believe that the employment of drainage has ever cost me the life of a patient, and, on the other hand, I am quite certain that it has saved many lives. My reason for employing drainage as a uniform practice was that hemorrhage had occurred several times in cases were it was unexpected; hence I felt that if I could not tell when to expect hemorrhage, it was better to employ a drainage-tube in order that I might have notice of its occurrence. The only evil which I can attribute to drainage, in my hands, is that it prevents a perfect apposition of the abdominal wound, and therefore I believe it is a predisposing cause of ventral hernia. The desire to restrict the number of hernias among my cases has been a strong factor in causing me to abandon the practice of draining all cases. As my experience grew I no longer felt the same fear of unexpected hemorrhage, and the feeling that in many cases the drainage-tube could do no possible good, and that it was a predisposing cause of ventral hernia, induced me to reduce its use to those cases in which I felt it was advantageous. As it has always been my practice to attend to drainage-tubes myself, I became aware that only exceptionally was much drainage discharged or removed through the tube. This fact has led me to believe that the influence for good of the drainage-tube has been overestimated. At the present time I use the drainage-tube for all operations which I believe to be septic, including pus-tubes, hydrosalpinx, ovarian abscesses, etc.; also, in all cases in which there have been extensive adhesions, especially if these are of a vascular nature; in other words, I drain all septic cases and all cases in which I expect much leakage after the operation. The results of those who do not employ drainage make it clear that very often in this class of cases patients would recover without drainage. It is true that many cases of pus-tubes and hydrosalpinx are not septic. Whatever germs may have been

present have died. In such cases, if the organic débris is thoroughly washed away with water, they will recover equally as well without as with drainage. But the trouble is that it is impossible to separate non-septic from septic pus cases; hence, as I am convinced by experience that the drainage-tube does no harm except from the stand-point of hernia, I have felt that it was wiser to employ it in all of these doubtful cases. Careful observation, however, has convinced me that the amount of the discharge coming through the drainage-tube has been greatly overestimated. What has been considered as leakage in many cases is nothing more than water which has been poured into the abdominal cavity during operation and not sponged out. While admitting all this on the negative side of the argument, I am strongly in favor of drainage in bad cases. The worse the case the more necessary is drainage. The healthy peritoneum will absorb a great deal, but the diseased peritoneum of a feeble subject should not be overtaxed, for at times it will fail to do its work, and the result will be death from septic peritonitis. The first year covered by this report I drained in forty-three per cent. of cases; the second year in thirty-two per cent.; formerly I drained in ninety per cent.

Gauze drainage is of value in certain cases. In incomplete operations and where there are extensive raw and vascular surfaces I think it is a most useful addition to our armamentarium; but these indications are seldom met with. It is to be used wherever we wish to favor the formation of adhesions, which fact shows that its usefulness is limited, because, as a general statement, adhesions are not to be desired.

Suturing the Abdominal Wall.—During the past eighteen months I have employed the method of Edebohls in suturing the abdominal wound. Increasing experience with the method convinces me the more of its value; and there is every reason to believe that it will reduce the number of hernias following operation to an inconsiderable percentage. The method is to bury a row of silkworm-gut sutures at the level of the aponeurosis. The skin and subcutaneous fat being pushed to one side, the needle is entered in the aponeurosis, passed through it, through the rectus muscle and the peritoneum upon one side, and in the reverse way upon the opposite side. When the proper number of sutures has been introduced they are tied (three ties to the knot) and the ends cut off short. This brings the parts nicely in apposition, and the sutures remain permanently. A row of superficial sutures now closes the skin. I would advise the use of this method of suturing in all cases in which a drainage-tube is unnecessary. When the drainage-tube is used, I do not employ the method, as a weak point is left, anyway; and besides there is some risk of infection of the buried sutures giving rise to stitch-hole abscess. Although I have buried hundreds of sutures in this way, very few have caused irritation or suppuration, and these it was easy to remove. This method of suturing is especially valuable for fat women.

Tuberculosis of the Genitalia and Peritoneum.—The frequency of tuberculosis of the genitalia and peritoneum is one of the questions which is interesting gynæcologists at this time. In the list of cases a case of tuber-

cular peritonitis is given, also one of tubercular pyosalpinx with tubercular peritonitis. In addition to these cases, there was one of suppurating ovarian tumor with double pyosalpinx, in which, at all events, tubercles were present, if not the cause of suppuration. In other words, three per cent. of all the cases were tubercular. A systematic study of the specimens macroscopically and microscopically has not been made; therefore I am not able to say that some cases of tubercular trouble have not been overlooked. In the future I intend to have specimens from every case of operation for diseased and adherent uterine appendages examined, so as to determine definitely the frequency of tuberculosis as a cause of pelvic inflammation. If further investigation demonstrates that Kelly's statement is true, as a matter of general experience, that twenty per cent. of such cases are tubercular in their nature, this factor will assume an unexpected importance as a cause of pelvic disease in women. I feel that it is important that the points should be settled definitely at an early day.

The Method of Operating as a Cause of Good or Bad Results.—I wish to say a few words concerning the influence of the method of operating upon the results obtained. In my judgment the results of abdominal surgery have suffered very much from the teaching that rapidity in operating is a *sine qua non* in obtaining success. Abdominal surgery has suffered from too much brilliancy. Careful, systematic, well-planned work will give the best results. Haste is to be deprecated. Broadly speaking, I have found that, when operations have been completed satisfactorily to myself, my patients have recovered, even though the operation has been tedious, difficult, and involving much manipulation. That which is most important in abdominal surgery is that each step of the operation shall be properly done, so that when the last step is completed the patient shall have been put in a condition for recovery to ensue. Impressed with the teaching that it was essential to complete abdominal sections in the smallest possible space of time, in the beginning of my work I made every effort to work on time, but with increasing experience my desire to finish within a specified time has grown steadily less. Undoubtedly there is a general relation between the length of the operation and its danger, but this relation is by no means definite; the danger depends far more upon what is being done in the time than upon the time itself. Exposure and rough handling of the bowels, injudicious use of ether, and permitting the patient to become chilled, are far more serious matters than the prolongation of the operation for ten, fifteen, or even thirty minutes. Every operator of experience must evolve a technique which is adapted to his own limitations. Aside from what has already been said, certain points will be considered which have proven useful in my hands. Bowel adhesions are separated with great care, usually with finger or sponge pressure, occasionally with scissors when extremely tough. The bowels are at once inspected and sutured if necessary. Care in the separation of bowel adhesions will reduce the number of fecal fistulæ to a minimum. In over two hundred sections I have torn into the bowels but once, and that was a

case in which the bowel walls were infiltrated with cancer. I believe that a great deal of the intestinal work in abdominal surgery, the anastomoses, resections, etc., represent so much careless and hurried surgery. Ten or fifteen minutes spent in separating the bowel adhesions would have saved the supposedly necessary and brilliant operations. Of course all must recognize that occasionally the walls of the bowels are so degenerated that the most extreme care in separating adhesions cannot prevent a fistula, but such cases are very rare, and a careful man will have very few of them.

In enucleating adherent masses from the pelvis the essential element of speed and success is to begin at a point of cleavage and to work systematically from that point until the mass is enucleated. Usually it is best to begin at the side of the uterus and to work downward and outward, so as to get under the mass and separate the deepest adhesions first. In cases requiring much manipulation it is wise to pack sponges so as to shut off the bowels from the field of operation, and thus to save them from exposure and also from contact with the fingers in their manipulations. This procedure will greatly lessen shock in difficult, tedious operations. Hemorrhage usually can be disregarded until the pedicle is reached, and then controlled by the pedicle ligature; only exceptionally is it necessary to place additional ligatures. The Trendelenburg posture is of service in many cases. When the pelvis is filled up with agglutinated viscera, it is oftentimes difficult to distinguish tumor, pus-tube, or bowel, the one from the other. In such cases vision comes to the assistance of touch. In general I find it easier and better to make the enucleation by touch alone. This doubtless is owing to long training in this method, as it seems rational to believe that vision would be of assistance in such cases. The use of the Trendelenburg posture is also of service when it becomes necessary to search for bleeding points, and in keeping the bowels out of the pelvis when using sutures in the pelvic cavity, as in hysterectomy.

Irrigation and drainage are sheet anchors of safety whenever the pelvis has been soiled by supposedly septic fluids. These procedures, properly employed, never do any harm, and are the means of saving many lives. I never hesitate to sponge the pelvis perfectly dry, unless, indeed, the operation has been very prolonged and the patient much shocked. If it is rational to deprive a patient of water for forty-eight hours after an operation in order to produce systemic thirst, and thus to promote the absorption of fluid from the peritoneal cavity, surely it is irrational to leave that cavity full of water. If the peritoneal cavity is left clean and free from fluid, it has been left as nearly as possible in its normal condition. Adherence to the foregoing principles and the observation of the strictest rules of antisepsis have enabled me to reduce the mortality in cases of cœliotomy, during the past two years, to five per cent., although dealing constantly with the gravest cases.

Appended is a table of operations which has been prepared by the assistant surgeon of the hospital, Dr. H. E. Applebach.

Table of Operations.

No.	Date.	Age.	M., S., W.	Par.	Mis.	Condition.	Disease.	Operation.	Time (in minutes).	Drain.	Course.	Temp.	Union.	Hospital or private.	Result.	Discharged.
1	Mrs. K., Oct. 19, 1891.	36	W.	0	0	Very bad; chronic bronchitis	Fibro-cyst of uterus.....	Hysterectomy	120	None.	Stump clipped off on 11th day	A.	P. except about pedicle.	H.	R.	Dec. 14, 1891.
2	Mrs. U., Oct. 22, 1891.	28	M.	1	...	Poor.....	Suppurating ovarian intraligamentous cyst.	Exploratory section; operation abandoned because the diagnosis of pregnancy was adopted.	30	Yes...	Peritonitis	F.	.....	H.	D.	.....
3	Miss N., Nov. 5, 1891.	30	S.	0	0	Fair.....	Ovarian cyst on left side; uterine myoma.	Removal of both uterine appendages.	35	None.	Uninterrupted.	A.	P.	H.	R.	Nov. 20, 1891.
4	Mrs. B., Nov. 9, 1891.	22	M.	1	1	Fair.....	Pyosalpinx and intraperitoneal abscess.	Removal of both uterine appendages.	40	3 days.	Uninterrupted.	F.	P.	H.	R.	Dec. 7, 1891.
5	Mrs. McG., Dec. 3, 1891.	...	M.	0	0	Fair.....	Uterine myoma.....	Removal of both uterine appendages.	35	None.	Uninterrupted.	A.	P.	H.	R.	Jan. 1, 1892.
6	Mrs. A., Dec. 6, 1891.	32	M.	...	...	Fair.....	Femoral hernia.....	Radical operation.....	25	None.	Uninterrupted.	A.	P.	H.	R.	Jan. 27, 1892.
7	Mrs. H., Dec. 19, 1891.	40	M.	0	0	Good.....	Double pyosalpinx.....	Removal of both uterine appendages.	25	1 day.	Good convalescence	A.	P.	H.	R.	Jan. 20, 1892.
8	Mrs. S., Jan. 21, 1892.	48	M.	0	0	Poor.....	Carcinoma peritonei.....	Exploratory abdominal section.	25	None.	.....	F.	P.	H.	R.	Feb. 17, 1892.
9	Mrs. V., Jan. 29, 1892.	30	M.	3	0	Fair.....	Hæmatoma of right ovary; left cirrhotic.	Removal of both uterine appendages.	35	None.	Suppression of urine.	F.	P.	H.	R.	Feb. 20, 1892.
10	Mrs. H., Feb. 2, 1892.	26	M.	0	0	Poor.....	Suppurating right intraligamentous ovarian cyst; left hydrosalpinx.	Removal of both uterine appendages; ovarian cyst held one quart of pus.	60	9 days.	Slow convalescence	F.	.....	H.	R.	Mar. 10, 1892.
11	Miss W., Feb. 4, 1892.	22	S.	0	0	Fair.....	Cystic right ovary; salpingitis; menorrhagia	Removal of right uterine appendage; left appendage previously removed for same trouble.	20	None.	Good.....	A.	P.	H.	R.	Feb. 24, 1892.

12	Mrs. S., Feb. 15, 1892.	27	M.	1	0	Poor.....	Endometritis fungosa; cystic ovaries; salpingitis; uncontrollable hemorrhages.	Curetting and removal of both uterine appendages.	40	1 day.	Good.....	A.	P.	H.	R.	Mar. 6, 1892.
13	Mrs. I., Feb. 17, 1892.	40	M.	0	0	Anæmic ...	Fibroma uteri.....	Exploratory abdominal section.	25	None.	Double ether pneumonia.	F.	P.	H.	R.	April 1, 1892.
14	Mrs. A., Feb. 23, 1892.	30	M.	0	0	Fair.....	Left pyosalpinx and suppurating intraligamentous ovarian cyst.	Removal of left tube and cyst.	150	3 days.	Uncomplicated.	F.	P.	H.	R.	Mar. 6, 1892.
15	Mrs. G., Feb. 25, 1892.	35	M.	5	6	Poor.....	Double pyosalpinx.....	Removal of both uterine appendages.	50	3 days.	Convalescence slow	F.	Suppurating wound.	H.	R.	Mar. 25, 1892.
16	Mrs. R., Mar. 7, 1892.	42	M.	...	...	Poor.....	Right ovarian cyst containing one gallon of fluid.	Removal of both uterine appendages.	40	None.	Uninterrupted.	A.	Stitch-hole abscess.	H.	R.	April 7, 1892.
17	Mrs. A., Apr. 4, 1892.	30	M.	0	0	Fair.....	Right pyosalpinx.....	Removal of right tube.....	60	2 days.	Uncomplicated.	A.	P.	H.	R.	May 3, 1892.
18	Miss G., Apr. 9, 1892.	21	S.	1	0	Good.....	Double ovaritis; salpingitis with extensive adhesions.	Removal of both uterine appendages.	35	2 days.	Uncomplicated.	A.	P.	H.	R.	May 17, 1892.
19	Mrs. T., May 5, 1892.	22	M.	1	0	Good.....	Right ovarian tumor; left cystic degenerated ovary and adherent tube.	Removal of tumor and both uterine appendages.	40	1 day.	Uncomplicated.	A.	P.	H.	R.	June 2, 1892.
20	Mrs. O., May 16, 1892.	20	M.	2	0	Fair.....	Right ovarian cyst; left degenerated ovary.	Removal of tumor and both uterine appendages.	30	None.	Uncomplicated.	A.	P.	H.	R.	June 12, 1892.
21	Miss M., May 19, 1892.	24	S.	0	0	Very bad...	Suppurating ovarian tumor; double pyosalpinx.	Removal of tumor and both uterine appendages.	75	Yes...	Patient died from exhaustion; no signs of peritonitis except vomiting.	F.	.....	H.	D.	.....
22	Mrs. T., May 26, 1892.	29	M.	0	0	Fair.....	Ovaritis.....	Removal of left uterine appendages.	25	None.	Uncomplicated.	A.	P.	H.	R.	June 26, 1892.
23	Mrs. G., June 16, 1892.	36	M.	5	6	Poor.....	Ventral hernia.....	Herniotomy.....	35	None.	Uncomplicated.	A.	P.	H.	R.	July 12, 1892.

No.	Date.	Age.	M., S., W.	Par.	Mis.	Condition.	Disease.	Operation.	Time (in minutes).	Drain.	Course.	Temp.	Union.	Hospital or private.	Result.	Discharged.
24	Mrs. C., June 20, 1892.	32	M.	0	1	Anæmic.....	Chronic salpingitis with marked adhesions; ovaritis.	Removal of both uterine appendages.	40	None.	Uncomplicated.	A.	P.	H.	R.	July 18, 1892.
25	Mrs. N., June 25, 1892.	40	M.	2	0	Poor.....	Chronic ovaritis; salpingitis; dense adhesions; retroflexion.	Removal of both uterine appendages; hysterorrhaphy.	45	2 days.	Uninterrupted.	A.	P.	H.	R.	July 27, 1892.
26	Mrs. T., June 25, 1892.	26	M.	3	0	Fair.....	Ruptured left tubal pregnancy.	Removal of both uterine appendages.	35	None.	Uncomplicated.	A.	P.	H.	R.	July 22, 1892.
27	Miss W., July 4, 1892.	30	S.	0	0	Fair.....	Retroflexion; chronic salpingitis; dense adhesions.	Removal of left uterine appendage; hysterorrhaphy.	35	1 day.	Uncomplicated.	A.	P.	H.	R.	Aug. 3, 1892.
28	Mrs. B., July 4, 1892.	40	M.	4	6	Poor.....	Double hydrosalpinx with small ovarian cyst.	Removal of both uterine appendages.	40	5 days.	Uncomplicated.	A.	P.	H.	R.	July 30, 1892.
29	Mrs. B., July 9, 1892.	40	W.	4	0	Worn.....	Large, soft fibroid.....	Abdominal section; hysterectomy.	75	None.	Slow convalescence	A.	Sloughing from stump.	H.	R.	Aug. 17, 1892.
30	Miss S., July 13, 1892.	25	S.	0	0	Bad.....	Tubercular peritonitis; large effusion.	Abdominal section and evacuation of fluid.	30	None.	Slow convalescence	F.	P.	H.	R.	Aug. 19, 1892.
31	Mrs. L., July 20, 1892.	52	M.	Nullipara.		Fair.....	Left femoral hernia; sacculation of sac, forming cyst.	Herniotomy; removal of sac and cyst; radical operation.	60	None.	Uncomplicated.	A.	P.	H.	R.	Aug. 6, 1892.
32	Mrs. T., July 25, 1892.	30	M.	3	0	Fair.....	Chronic ovaritis and salpingitis; dense adhesions.	Removal of both uterus and appendages.	40	None.	Uncomplicated.	A.	P.	H.	R.	Aug. 3, 1892.
33	Miss H., July 26, 1892.	18	S.	0	0	Good.....	Catarrhal appendicitis...	Abdominal section; vermiform appendix removed.	35	None.	Uncomplicated.	F. 1st day.	P.	H.	R.	Aug. 23, 1892.
34	Miss M., Aug. 1, 1892.	20	S	0	0	Fair.....	Right ovarian cyst; double salpingitis with adhesions; hystero-epilepsy.	Removal of both uterine appendages.	35	1 day.	Uncomplicated.	A.	P.	H.	R.	Sept. 30, 1892.

35	Mrs. O., Sept. 7, 1892.	20	M.	0	1	Poor.....	Large hemorrhage in left horn; bifid pregnant uterus.	Exploratory section; hemorrhage supposed to be in peritoneal cavity.	30	None.	Abortion following operation.	F.	P.	H.	R.	Sept. 29, 1892.
3[illegible]	Miss T., Sept. 13, 1892.	19	S.	0	0	Worn; has been in bed 7 weeks.	Double salpingitis; left ovarian cyst suppurating.	Removal of both uterine appendages.	50	14 days.	Slow convalescence	F.	Suppurated.	H.	R.	Oct. 17, 1892.
37	Mrs. D., Sept. 14, 1892.	42	M.	8	3	Fair.....	Tumor of right kidney, malignant.	Exploratory section.....	25	None.	Uninterrupted.	A.	P.	H.	R.	Oct. 14, 1892.
38	Mrs. C., Sept. 28, 1892.	26	M.	0	0	Good.....	Pregnancy; flat pelvis..	Elective Cæsarean section.....	60	None.	Uninterrupted.	A.	P.	H.	R.	Oct. 26, 1892.
39	Miss O., Oct. 3, 1892.	23	S.	0	0	Poor.....	Double pyosalpinx.....	Removal of both uterine appendages.	35	3 days.	Wound sloughed.	F.	Suppurated.	H.	R.	Nov. 30, 1892.
40	Mrs. W., Oct. 6, 1892.	42	M.	4	0	Fair.....	Tubercular peritonitis; double tubercular pyosalpinx.	Removal of both uterine appendages.	40	1 day.	Slow.....	F.	Suppurated.	H.	R.	Nov. 5, 1892.
41	Miss R., Oct. 10, 1892.	28	S.	0	0	Fair.....	Double pyosalpinx.....	Removal of both uterine appendages.	35	1 day.	Uninterrupted.	A.	P.	H.	R.	Nov. 22, 1892.
42	Miss E., Oct. 21, 1892.	26	S.	0	0	Fair.....	Ventral hernia.....	Abdominal section, excision of ring; buried silkworm-gut sutures.	45	None.	Uninterrupted.	A.	P.	H.	R.	Nov. 22, 1892.
43	Mrs. B., Oct. 27, 1892.	33	M.	1	0	Fair.....	Small fibroid, right ovarian cyst; left ovaritis.	Cœliotomy, removal of uterine appendages.	35	None.	Uninterrupted.	A.	P.	H.	R.	Nov. 27, 1892
44	Mrs. H , Oct. 27, 1892.	24	M.	2	0	Fair.....	Hernia.....	Herniotomy.....	40	None	Uninterrupted.	A.	P.	H.	R.	Nov. 30, 1892.
45	Mrs. Da M., Nov. 3, 1892.	28	M.	2	0	Worn.....	Chronic ovaritis; left ovary.	Cœliotomy, removal of left uterine appendage.	35	None	Uninterrupted.	A.	P.	H.	R.	Dec. 22, 1892.
46	Mrs. G , Nov. 10, 1892.	45	M.	2	0	Worn.....	Ovaritis; left ovary lightly adherent.	Cœliotomy, removal of uterine appendages.	30	None.	Uninterrupted.	A.	P.	H.	R.	Dec. 7, 1892.
47	Mrs. H., Nov. 10, 1892.	35	M.	0	0	Worn.....	Double pyosalpinx.....	Cœliotomy, removal of uterine appendages.	45	1 day.	Suppuration in pelvis after first week.	F.	P.	H.	R.	Dec. 13, 1892.
48	Miss Q., Dec. 6, 1892.	25	S.	0	0	Good.....	Double pyosalpinx; abscess of both ovaries; adhesions.	Cœliotomy, removal of both uterine appendages.	35	17 days.	Suppuration in the pelvis.	F.	Suppurated.	H.	R.	Feb. 4, 1893.
49	Mrs. G., Jan. 16, 1893.	28	M.	Multipara.		Fair	Malignant disease of left uterine appendage; papillomatous.	Cœliotomy, exploratory.....	35	5 days, gauze.	Uninterrupted.	A.	P.	H.	R.	Feb. 14, 1893.

No.	Date.	Age.	M., S., W.	Par.	Mis.	Condition.	Disease.	Operation.	Time (in minutes).	Drain.	Course.	Temp.	Union.	Hospital or private.	Result.	Discharged.
50	Mrs. H., Jan. 17, 1893.	34	M.	3	0	Poor.....	Ovaritis; right ovary...	Cœliotomy, removal of right uterine appendages.	30	None.	Uninterrupted.	A.	P.	H.	R.	Feb. 24, 1893.
51	Mrs. W., Jan. 28, 1893.	33	M.	...	...	Fair.....	Double salpingitis; Oöphoritis, with dense adhesions.	Cœliotomy, removal of both uterine appendages.	30	None.	Uninterrupted.	A.	P.	H.	R.	Mar. 3, 1893.
52	Mrs. K., Jan. 28, 1893.	56	M.	2	0	Poor.....	Retroversion.....	Cœliotomy, hysterorrhaphy...	30	None.	Uninterrupted.	A.	P.	H.	R.	Mar. 3, 1893.
53	Mrs. G., Feb. 2, 1893.	51	M.	Multipara.		Poor.....	Uterine myoma.....	Cœliotomy, hysterectomy.....	75	None.	Uninterrupted.	A.	P.	H.	R.	Mar. 16, 1893.
54	Mrs. A., Feb. 3, 1893.	56	M.	0	0	Very bad..	Large right ovarian cyst.	Cœliotomy, removal of right uterine appendage.	40	None.	Uninterrupted.	A.	P.	H.	R.	Mar. 2, 1893.
55	Mrs. K., Feb. 13, 1893.	28	M.	2	0	Fair.....	Retroflexion and adherent uterine appendages; left ovary large.	Cœliotomy, removal of left uterine appendages.	35	None.	Slow. Suppuration in the pelvis.	F.	Suppurated.	H.	R.	Mar. 31, 1893.
56	Mrs. U., Feb. 16, 1893.	23	M.	...	...	Fair.....	Retroflexion; universal pelvic adhesions.	Cœliotomy, removal of left uterine appendage.	40	None.	Uninterrupted.	A.	P.	H.	R.	Mar. 12, 1893.
57	Mrs. W., Feb. 20, 1893.	36	M.	0	0	Bad.....	Double pyosalpinx, extreme asthenia.	Cœliotomy, removal of both uterine appendages.	40	Yes.	Very sick.	F.	.....	H.	D.	.....
58	Mrs. M., Feb. 20, 1893.	28	M.	3	0	Fair	Double ovarian cyst.....	Cœliotomy, removal of both uterine appendages.	40	None.	Uninterrupted.	A.	P.	H.	R.	Mar. 16, 1893.
59	Mrs. M., Mar. 6, 1893.	37	M.	2	0	Fair.....	Adherent left tube and ovary.	Cœliotomy, removal of left uterine appendage.	30	None.	Uninterrupted.	F.	Suppurated.	H.	R.	.....
60	Mrs. W., Mar. 9, 1893.	23	M.	2	0	Fair.....	Bilat. cystic degeneration of ovaries; metrorrhagia.	Cœliotomy, removal of uterine appendages; curetting.	35	None.	Uninterrupted.	A.	P.	H.	R.	April 4, 1893.
61	Mrs. M., Mar. 9, 1893.	57	M.	3	0	Fair.....	Incarcerated hernia, inguinal.	Herniotomy.....	35	None.	Uninterrupted.	A.	P.	H.	R.	Mar. 22, 1893.
62	Mrs. R., Mar. 13, 1893.	59	M.	7	3	Fair.....	Stone in left ureter.....	Cœliotomy, (accidental) suprapubic cystotomy, ureterotomy, removal of stone.	40	None.	Insanity.	A.	P.	H.	R.	Mar. 31, 1893.
63	Mrs. G., Mar. 16, 1893.	33	M.	2	1	Fair.....	Right ovarian cyst; double salpingitis; universal adhesions.	Cœliotomy, removal of both uterine appendages; hysterorrhaphy.	40	36 hours.	Uninterrupted.	A.	P.	H.	R.	Apr. 24, 1893.

64	Miss M., Mar. 20, 1893.	18	S.	0	0	Bad.....	Papillary ovarian cyst..	Cœliotomy; sac wall incorporated with all the viscera; sac wall sewed to abdominal wall.	45	Yes.	Slow.	F.	.....	H.	R.	Apr. 7, 1893.
65	Mrs. M., Mar. 22, 1893.	57	M.	3	0	Fair.....	Left ovarian cyst; sarcoma of uterus.	Cœliotomy, exploratory.....	40	2 days.	Uninterrupted.	A.	P.	H.	R.	Apr. 27, 1893.
66	Mrs. C., Mar. 22, 1893.	30	M.	1	1	Fair.....	Ventral hernia, post-operative.	Herniotomy.....	40	None.	Uninterrupted.	A.	P.	H.	R.	Apr. 17, 1893.
67	Mrs. J. N., Apr. 6, 1893.	40	M.	1	0	Fair.....	Right ovarian cyst; double salpingitis.	Cœliotomy, removal of both uterine appendages.	35	1 day.	Uninterrupted.	A.	P.	H.	R.	May 17, 1893.
68	J. P., Apr. 17, 1893.	36	M.	Multipara.		Fair.....	Retroversion; double salpingitis; dense adhesions.	Cœliotomy, removal of both uterine appendages; hysterorrhaphy.	35	None.	Uninterrupted.	A.	P.	H.	R.	May 18, 1893.
69	M. S, Apr. 20, 1893.	35	S.	0	0	Fair	Right ovarian cyst; uterine prolapse.	Cœliotomy, removal of right uterine appendage; hysterorrhaphy.	40	None.	Uninterrupted.	A.	P.	H.	R.	May 20, 1893.
70	Miss D., May 1, 1893.	25	S.	0	0	Fair.....	Double pyosalpinx.....	Cœliotomy, removal of uterine appendages.	45	2½ days.	Uninterrupted.	A.	P.	H.	R.	May 29, 1893.
71	Mrs. I., May 4, 1893.	54	M.	9	2	Fair.....	Enlarged liver.....	Cœliotomy, exploratory.....	30	None.	Uninterrupted.	A.	P.	H.	R.	May 23, 1893.
72	Miss P., May 5, 1893.	20	S.	0	0	Bad.....	Double pyosalpinx, suppurating ovarian cyst.	Cœliotomy, removal of both uterine appendages.	45	36 hours.	Uninterrupted.	F.	P.	H.	R.	June 7, 1893.
73	L. R., May 13, 1893.	10	S.	0	0	Good.....	Perityphlitic abscess.....	Cœliotomy, evacuated abscess.	15	2 weeks.	Uninterrupted.	F.	P.	H.	R	May 22, 1893.
74	Mrs. P., May 17, 1893.	27	M.	Multipara.		Bad.....	Larger right ovarian cyst; five mos. pregnancy.	Cœliotomy, removal of cyst..	35	None.	Uninterrupted.	A.	P.	H.	R.	June 18, 1893.
75	Mrs. McK., May 19, 1893.	27	M	1	1	Fair	Double pyosalpinx; intraperitoneal abscess.	Cœliotomy, removal of uterine appendages.	30	1 day.	Uninterrupted.	A.	P.	H.	R.	June 12, 1893.
76	Mrs. M. G., May 19, 1893.	22	M.	0	1	Fair.....	Right ovarian cyst; three mos. pregnancy.	Cœliotomy, right ovariotomy	30	None.	Uninterrupted.	A.	P.	H.	R.	June 10, 1893.
77	Mrs. A., May 22, 1893.	23	M.	Multipara.		Poor.....	Ovaritis.....	Cœliotomy, removal of right uterine appendage.	30	None.	Uninterrupted.	A.	P.	H.	R.	June 22, 1893.
78	Mrs. P., May 22, 1893.	29	M.	0	1	Bad.....	Double pyosalpinx.....	Cœliotomy, removal of uterine appendages.	45	3 days.	Very sick.	F.	P.	H.	R.	June 13, 1893.
79	Mrs. R., May 25, 1893.	38	M.	2	0	Bad.....	Double salpingitis.....	Cœliotomy, removal of uterine appendages.	45	None	Uninterrupted.	A.	P.	H.	R.	June 30, 1893.
80	Mrs. F., May 29, 1893.	22	M.	0	0	Fair.....	Double ovarian cyst; intralig.; papillary?	Cœliotomy, removal of uterine appendages; three holes in bowel sutured.	60	16 days.	Very sick.	F.	Suppurated.	H.	R.	July 11, 1893.

No.	Date.	Age.	M., S., W.	Par.	Mis.	Condition.	Disease.	Operation.	Time (in minutes).	Drain.	Course.	Temp.	Union.	Hospital or private.	Result.	Discharged.
81	Mrs. D., May 31, 1893.	43	M.	Multi-para.		Fair.....	Uterine fibroma.....	Cœliotomy, hysterectomy.....	75	None.	Uninterrupted.	A.	P.	H.	R.	July 7, 1893.
82	Mrs. H., May 31, 1893.	30	S.	0	0	Good.....	Double salpingitis; small left ovarian cyst; pelvic adhesions.	Cœliotomy, removal of uterine appendages.	35	2 days.	Uninterrupted.	F.	P.	H.	R.	July 8, 1893.
83	Mrs. N., June 26, 1893.	40	M.	...	...	Fair..... ...	Double salpingitis; adventitious cyst.	Cœliotomy, removal of uterine appendages.	35	None.	Uninterrupted.	A.	P.	H.	R.	July 21, 1893.
84	Mrs. F., June 26, 1893.	18	M.	1	0	....	Left cellulitis, puerperal	Cœliotomy, exploratory.....	30	None.	Uninterrupted.	A.	P.	H.	R.	July 12, 1893.
85	Miss R., June 28, 1893.	20	S.	0	0	Bad.....	Left papillary suppurating ovarian cyst.	Cœliotomy, sac irremovable, was sutured to abdominal wall.	60	Glass 3, gauze.	Very sick.	F.	.....	H.	R.	July 16, 1893.
86	Mrs. K., June 29, 1893.	30	M.	2	1	Good.....	Fibroid of uterus, myxomatous degeneration.	Cœliotomy, vaginal and abdominal hysterectomy.	60	None.	Uninterrupted.	F.	P.	H.	R.	July 26, 1893.
87	Mrs. C., July 6, 1893.	48	M.	4	3	Fair.....	Malignant disease of cervix uteri.	Cœliotomy, vaginal and abdominal hysterectomy.	60	None.	Uninterrupted.	A.	P.	H.	R.	Aug. 6, 1893.
88	Mrs. R., July 10, 1893.	35	M.	...	...	Fair.....	Double pyosalpinx.....	Cœliotomy, removal of uterine appendages.	35	2 days.	Uninterrupted.	A.	P.	H.	R.	Aug. 26, 1893.
89	Mrs. E., July 23, 1893.	50	M.	...	...	Fair.....	Epithelioma of cervix uteri.	Cœliotomy, vaginal and abdominal hysterectomy.	120	None.	Very sick.	F.	.....	H.	D.	.....
90	Miss M., July 24, 1893.	23	S.	0	0	Fair.....	Chronic cystic ovaries, epilepsy.	Cœliotomy, left uterine appendage removed; hysterorrhaphy.	35	None.	.....	Hyperpyrexia.	.....	H.	D.	.....
91	Mrs. S., July 31, 1893.	24	M.	1	0	Fair.....	Left dermoid cyst, with twisted pedicle; small right ovarian cyst.	Cœliotomy, removal of both uterine appendages.	35	1 day.	Uninterrupted.	A.	P.	H.	R.	Sept. 4, 1893.
92	Mrs. S., Aug. 8, 1893.	40	M.	...	...	Bad.....	Right ovarian tumor; solid and cystic double salpingitis; fibroids; universal adhesions.	Cœliotomy, removal of uterine appendages.	40	2 days.	Uninterrupted.	Slight fever.	P.	H.	R.	Sept. 6, 1893.
93	Mrs. S., Aug. 27, 1893.	39	M.	...	...	Fair.....	Fibroids of uterus.....	Cœliotomy, removal of uterine appendages.	30	None.	Uninterrupted.	A.	P.	H.	R.	Oct. 15, 1893.

94	Mrs. W., Aug. 28, 1893.	29	M.	...	...	Fair.....	Retroversion; varicocele of the broad ligament.	Cœliotomy, removal of left uterine appendage; hysterorrhaphy.	30	None.	Uninterrupted.	A.	P.	H.	R.	Sept. 14, 1893.
95	Mrs. T., Sept. 8, 1893.	25	M.	0	0	Fair.....	Double dermoids of ovaries, bone outside of tumors.	Cœliotomy, removal of both tumors.	45	2 days.	Uninterrupted.	A.	P	H.	R.	Oct. 16, 1893.
96	Mrs. G., Sept. 18, 1893.	41	M.	1	0	Worn.....	Salpingitis and retroflexion; adherent appendages and uterus.	Cœliotomy, removal of uterine appendages; hysterorrhaphy.	35	None.	Suppuration in abdominal wall.	F.	Suppurated.	H.	R.	Oct. 30, 1893.
97	Mrs. M. C., Sept. 18, 1893.	36	M.	3	0	Fair.....	Hypertrophic cystic degeneration of left ovary.	Cœliotomy, removal of left uterine appendage.	25	None.	Uninterrupted.	A.	P.	H.	R.	Oct. 12, 1893.
98	Mrs. B., Sept. 27, 1893.	41	M.	4	6	Good.....	Post-operative ventral hernia.	Herniotomy.....	45	None.	Uninterrupted.	A.	P.	H.	R.	Oct. 21, 1893.
99	Mrs. T., Oct. 4, 1893.	25	M.	0	0	Good.....	Cystoma of left ovary; large hydrops follic. of right ovary.	Cœliotomy, removal of left uterine appendage.	30	None.	Uninterrupted.	A.	P.	H.	R.	Oct. 31, 1893.

CLASSIFICATION OF CASES.

Ovarian cysts	single	5
	double	1
	single, malignant	6
	double, malignant	1—13
Dermoid cysts	single, on left side	1
	double	1— 2
Ovarian cyst complicated by	hydrosalpinx	2
	pyosalpinx	2
	salpingitis and pelvic adhesions	6
	pregnancy	2
	suppuration	1—13
Retroflexion		1
Retroflexion complicated by	variocele of broad ligaments	1
	double salpingitis and pelvic adhesions	6— 7
Pyosalpinx	single	2
	double	10
	with abscess of one ovary	1
	with abscess of both ovaries	2—15
Chronic ovaritis and salpingitis	one side	4
	both sides	6—10
Double salpingitis, oöphoritis, with dense adhesions		1
Hæmatoma of right ovary, cirrhosis of left		1
Salpingitis, cystic ovaries, endometritis fungosa, metrorrhagia		1
Hypertrophic cystic degeneration of ovaries		2
Double salpingitis with adventitious cyst		1
Perityphlitic abscess		1
Stone in left ureter (accidental cœliotomy)		1
Uterine fibroids		6
Fibro-cyst of uterus		1
Fibro-sarcoma of uterus		1
Myxomatous degeneration of uterine fibroid		1
Small fibroid, right ovarian cyst, left ovaritis		1
Left pelvic cellulitis (puerperal)		1
Enlarged liver		1
Ventral hernia		5
Incarcerated inguinal hernia		1
Femoral hernia		2
Ruptured tubal pregnancy		1
Tubercular peritonitis		1
Tubercular peritonitis, double pyosalpinx		1
Catarrhal appendicitis (recurrent)		1
Hemorrhage into left horn of pregnant bifid uterus		1
Malignant tumor of kidney		1
Epithelioma of cervix uteri		1
Malignant adenoma of cervix uteri		1
Carcinoma peritonei		1
Pregnancy, flat pelvis		1
		99

CLASSIFICATION OF OPERATIONS.

ONE UTERINE APPENDAGE REMOVED FOR:

Cystic right ovary, menorrhagia	1
Right pyosalpinx	1
Ovaritis	5

CLASSIFICATION OF OPERATIONS—*Continued.*

ONE UTERINE APPENDAGE REMOVED FOR:

Ovarian cyst	6	
Ovarian cyst, suppurating, complicated by left pyosalpinx	1	
Retroflexion with adherent appendages	3	
Hypertrophic cystic degeneration of left ovary	1	18

BOTH UTERINE APPENDAGES REMOVED FOR:

Uterine fibro-myoma	6	
Uterine fibro-myoma complicated by ovarian cyst	2	8
Ovarian cyst		3
Ovarian cyst complicated by suppuration in cyst, or pyosalpinx, or salpingitis		10
Pyosalpinx and ovarian abscess		12
Hæmatoma and cirrhosis of ovaries		1
Cystic ovaries, salpingitis, endometritis fungosa, and metrorrhagia		1
Chronic ovaritis, salpingitis, and adhesions		11
Ruptured tubal pregnancy		1
Retroflexion and adherent appendages		1
Bilateral cystic degeneration of ovaries		1
Dermoid cyst		2
		51

MISCELLANEOUS CŒLIOTOMIES.

Exploratory incisions		8	
Hysterorrhaphy		2	
Hysterectomy		4	
Herniotomy	inguinal	1	
	ventral	5	
	femoral	2	8
Evacuation of perityphlitic abscess		1	
Irremovable sac of suppurating malignant ovarian cyst		1	
Removal of vermiform appendix		1	
Elective Cæsarean section		1	
Evacuation of fluid, tubercular peritonitis		1	27

VAGINAL ABDOMINAL HYSTERECTOMIES.

Malignant adenoma of cervix	1	
Myxomatous degeneration of uterine fibroid	1	
Epithelioma of cervix	1	3
Total		99

DEATHS.

There have been five deaths in this series of ninety-nine cases. Numbers 2, 21, 57, 89, and 90 have died; or a mortality of five per cent.

There have been eight cases operated on between the beginning of this list and the last death, and there have been four cases in the current hospital year without any deaths; making a total of one hundred and eleven cases, with five deaths.

Number 2 had a suppurating ovarian cyst, which filled up the pelvis and was universally adherent. No landmarks could be recognized in the pelvis. The tumor presented somewhat the appearance of the pregnant uterus, and, not being able to exclude this supposition, the operation unfortunately was abandoned. Septic peritonitis resulted from leakage from the tumor, causing the death of the patient on the second day.

Number 21 had a suppurating ovarian tumor and double pyosalpinx, with tuberculosis of the pelvic organs and of the lungs. She had been confined to her bed for some weeks, and had been emaciating for some months prior to the operation, so that she was

in extremely bad condition at the time of the operation, which was undertaken with the prognosis of a possible recovery by operation, but with certain death at an early day without it. She died on the fourth day, and no autopsy could be obtained. She had had some vomiting, and also some fever, but none of the local signs of a peritonitis. Her death was due probably to shock and asthenia, but, as no post-mortem was made, peritonitis could not be excluded positively, although none of its local evidences were present.

Number 57 had a double pyosalpinx, was a confirmed invalid, and had been confined to her bed for weeks before her operation. She died within twenty-four hours after the operation, without other symptoms than a gradually failing pulse. She had no shock in the sense of a depressed temperature when she went to bed; hence it is difficult to name the cause of her death, which, however, was probably due to shock.

Number 89 died on the sixth day after a vagino-abdominal hysterectomy for epithelioma of the cervix. This operation was a very difficult and tedious one, lasting two hours. It was accompanied also by considerable hemorrhage. Shock was very profound, and the patient never reacted fully. She was never entirely rational after the operation, although she could be roused and could answer questions intelligently. There were no symptoms except those of prostration during the six days, except slight nausea on the second day and a rise of temperature to 101° F. on the third day. The pulse-rate varied from 100 to 150. The autopsy showed the peritoneum to be entirely healthy; also that the kidneys were healthy, and the ureters pervious. Sepsis and peritonitis can thus be excluded. The autopsy was not a complete one, so that disease of the brain cannot be excluded positively, but there is every reason to accept a diagnosis of a death from shock and asthenia.

Number 90 was the subject of epilepsy, and had a retroverted uterus, with a tender cystic left ovary. The left ovary and tube were removed, and a hysterorrhaphy was done. The patient's temperature remained below 100° until the evening of the following day, with a pulse of less than 80. She complained, however, of great pain, and was extremely restless. This restlessness increased rather than diminished. During the following night the temperature became 102°, with a pulse of 80. The following morning (second day) the pulse was 100, and the temperature 102°. This was Wednesday, August 26, the hottest day of the summer. I was summoned to see the patient at eleven o'clock, and found her with a temperature of $105\frac{1}{5}$°, evidently alarmingly ill. She died within two hours, in hyperpyrexia, in spite of assiduous efforts at refrigeration. The autopsy revealed a healthy peritoneum and no evidence of sepsis. A diagnosis of heat-stroke was made by the pathologist, and concurred in by myself.

A SPECIMEN OF FOUR HEALED, ASCENDING, ILEAL INVAGINATIONS, SYMMETRICAL AND EQUIDISTANT.[1]

BY LUDVIG HEKTOEN, M.D.,
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In this paper it is intended to describe briefly and succinctly an intestine showing four symmetrical and equidistant, healed or irreducible, ascending ileac invaginations.

In order to emphasize the uniqueness of this specimen it will be neces-

[1] Presented to the Pathologic Section of the Chicago Academy of Sciences, May, 1893.

sary concisely to review the literature in regard to multiple, to ascending, and to healed intussusceptions.

I. *Multiple Intussusception.*—While the invaginations of the death agony are very frequently multiple, the "inflammatory invagination" appears to be almost invariably single.

The following instances are found in the literature of recent years.

Claudot[1] describes a descending ileac invagination, eighty centimetres below the pylorus, and a second one two metres below, the ileum passing into the colon.

Sibbly[2] showed a specimen from a female baboon of ileo-colic intussusception with two smaller invaginations higher up in the ileum, but the description is not enough to show positively the inflammatory or the agonal nature of the two smaller.

D'Arcy Power[3] detailed an instance of descending invagination of ileum into the colon, and three inches below the apex of this was a second ascending intussusception, one inch long. There were no tumors in the intestine, and there was a well-marked fibrinous exudate upon the serous surfaces, showing definitely the development of the invaginations some considerable time before death. The specimen came from a boy five months old, who had been sick for five days with the usual symptoms. Power remarks that he had recently heard of two operations for intussusception, each terminating fatally on account of the presence of a scond unravelled invagination, but he gives no further details.

Eichhorst[4] mentions that Thomas, Birch-Hirschfeld, and Power, whose case has just been given, have all described multiple invaginations.

The cases of Peregrine and of Handfield Jones and Page, usually referred to as multiple intussusceptions, are properly considered as peculiar combinations of descending and ascending, doubled and five-layered invaginations, rather than as multiple in the sense of more than one separate, three-layered reduplication. Peregrine's[5] case was a descending invagination in the colon, in the centre of which was a small, retrograde, five-layered invagination. Jones and Page's[6] case was a descending ileo-cæcal and an ascending colico-colic intussusception with overlapping at the centre of the mass.[7]

Birch-Hirschfeld[8] describes minutely the post-mortem appearances in the intestine of a child, two years old, who had recovered from a double invagination, death occurring four months afterwards from measles. The

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[1] De l'Occlusion intestinale, Thèse, Paris, 1884.

[2] Transactions London Path. Society, vol. xxxix., 1888.

[3] Ibid., vol. xxxvii., 1886.

[4] Handbuch der Speciellen Path. u. Therapie, 1891.

[5] Lancet, vol. i., 1873, p. 709.

[6] Medico-Chirurgical Transactions, vol. lxi. p. 301.

[7] For further details in regard to such manifold invaginations see Leichtenstern, Prag. Vierteljahresschrift, Bd. 118, 119, 120, and 121.

[8] Archiv der Heilkunde, Heft 1, 1869. Quoted in Intestinal Surgery by N. Senn, Chicago, 1889, p. 85.

lower portion of the ileum, the cæcum, and the vermiform appendix were absent, a circular external depression and a circular internal cicatrix showing where separation of the intussusceptum had occurred. At the junction of the ascending with the transverse colon was a similar cicatrix, from the appearance of which it was concluded that at this point there had been a second invagination. This case of Birch-Hirschfeld is the only recorded instance of healed multiple invagination that has come under my observation.

In the recent French book on medicine the statement occurs that there have been observed double and triple invaginations.[1]

The multiple invaginations described by Beecher[2] and by Longstreth[3] are from all appearances specimens of the agonal variety, because it is expressly stated that all signs of inflammation and strangulation were absent.

Allen[4] and Burge[5] have both described multiple intussusceptions, but their articles have been inaccessible.

II. *Ascending or Retrograde Intussusception.*—Brinton is quoted by Jones and Page[6] as saying that he would as soon believe in the existence of an ascending intussusception as in the existence of the sea serpent or any other fabled monster.

"Inflammatory invagination takes place without exception from above downward, so that a portion of the intestine is invaginated into another portion lying below it" (Leichtenstern[7]). In a collation of five hundred and ninety-nine cases he was able to point out only eight instances of ascending or retrogressive invagination, and these, he says, deserve the name only anatomically.

Duchaussoy,[8] out of one hundred and thirty-seven cases of intussusception collected by him, found sixteen instances of retrograde invagination, all of which were complicated, and Haven[9] found three cases in fifty-nine.

Recently Korter[10] reported a case of retrograde invagination in the descending colon of a boy, eight years old, with active symptoms extending over a period of four days; in this case there were no complications of any kind, the ascending invagination mentioned being the only one present, and recovery took place promptly after the cœliotomy.

Dr. F. B. Wood[11] describes a specimen removed post-mortem from a woman, aged twenty-five, who died after suffering twelve days with quite typical symptoms of intestinal obstruction, which showed an ascending

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[1] Traité de Médecine, Charcot, Bouchard, Brissand, tome iii., 1892, p. 519.
[2] Philadelphia Path. Soc. Trans., vol. v. p. 25, 1876.
[3] Ibid., vol. v. p. 26, 1876.
[4] Austr. Med. Journal, 1883.
[5] Proceedings Med. Soc. County Kings, 1879–80.
[6] Loc. cit.
[7] Ziemssen's Cyclopædia, vol. vii. p. 611, 1876.
[8] Quoted by D'Arcy Power, loc. cit.
[9] Ibid.
[10] Berliner Kl. Wochenschrift, No. 26, 1892.
[11] Peninsular Jour. Med., 1876, i. 157–159.

invagination six and three-fourths inches long, "the ileum being forced from below up, taking with it the ileo-cæcal valve and the cæcum."

It will be recollected that the inferior of the double intussusception described by Power[1] was ascending.

Eichhorst[2] states that Besnier, as well as Jones, described instances of invagination of the descending upward into the transverse colon in five-year-old boys.

In regard to the production of ascending invagination Leichtenstern[3] speaks authoritatively as follows: "Ascending invaginations deserve the name only anatomically; they are essentially different genetically from the primary inflammatory intussusceptions which are always and only descending. These ascending inflammatory invaginations occur at a time when the normal movement of the contents, the normal peristaltic action, is arrested by a serious affection of the intestine, usually peritonitis, with paralysis of long portions of it. They are therefore allied to the invaginations of the death-struggle, and are only distinguished from them by the fact that they appear more promptly and at a time when inflammatory union of the invaginated parts is still possible. On the other hand, in double invaginations a secondary ascending invagination sometimes occurs together with the primary descending one. This is usually produced by the flaccid, plaited, receiving layer of the primary invagination slipping upward between itself and the intussusception."

From this citation it would seem that Power's[4] case of descending ileo-cæcal and ascending colic invagination might be construed as an instance of a secondary ascending intussusception occurring together with a primary descending one, produced in the way Leichtenstern describes.

Such instances as Korter's[5] and Wood's cases of single, primary, ascending invagination in the descending colon are difficult to explain in view of the positive dictum that "primary inflammatory invaginations are always and only descending." As far as can be made out, there was no serious intestinal affection present that might be accompanied with peristalsis in a reverse, ascending direction. Irregular, limited, or vigorous peristalsis is regarded as the essential cause of intussusception, and it is not at all clear why such irregular peristalsis during life should always and only give rise to descending, vital invaginations, while the irregular peristalsis of the death-struggle results in the formation of ascending and descending invaginations with almost equal frequency.

III. *Healed Intussusception.*—Spontaneous termination of intussusception through the necrosis and elimination of the intussusception takes place, according to Treves,[6] in about forty per cent. of all the cases.

Gaultier de Claubry[7] collected twenty cases of invagination which ter-

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[1] Loc. cit. [2] Loc. cit. [3] Ziemssen's Cyclopædia, loc. cit.
[4] Loc. cit. [5] Loc. cit. [6] Intestinal Obstruction.
[7] Journal Hebdomadaire Universel de Méd. et Chir., 1835.

minated by the elimination of the strangulated portion of the bowel. Almost simultaneously Thomsen [1] gathered thirty-five cases, in which are included, according to Peacock,[2] all but two of de Claubry's cases. Then M. Duchaussoy [3] brought together thirty independent cases. More lately Leichtenstern[4] collected one hundred and forty-nine instances of spontaneous elimination, and from this material interesting data have been sought out concerning the more striking and important features of this aspect of intestinal invagination: thus, the sex, the age, the symptoms, the causes, the period at which the discharge of the sequestrum occurred, the portion of the intestine involved, the size of the piece or pieces evacuated, and the immediate as well as the remote results in these cases have all been studied and elaborated.

From the frequency of intussusception in early life and the few cases of elimination of the strangulated part in children, it has been inferred that during the earlier years the disease is too rapidly fatal to allow spontaneous termination to occur. Chiari,[5] however, describes an instance of intestinal atresia following an intra-uterine, ileal intussusception; H. Cripps [6] describes spontaneous elimination in a child of seven months, in which post-mortem examination—death being due to scarlatina—showed the small intestine adherent to the anus, the colon and the cæcum being absent. Similar cases are scattered through the literature.

Separation of the necrotic intussusception has been found to occur before the thirtieth day in the majority of the instances, "usually from the eleventh to the twenty-first day in acute cases." [7]

Most commonly the parts separated seem to have belonged to the ileum, but this is regarded as connected with the more common occurrence of intussusception in the small than in the large intestine.

In those instances that recover after the discharge of the strangulated necrotic intussusception, prophylactic adhesions at the neck of the intussusception provide for sequestration being confined within the intestine, and it is through this process that the patients escape alive. Elimination of the invaginated portion is not, of course, invariably followed by recovery. Leichtenstern's cases showed a mortality of forty-one per cent., and the subsequent history often shows that a not inconsiderable number of those that recover subsequently perish from perforation, peritonitis, or from the effects of intestinal stricture and ulceration.

When death occurs some time after the discharge of the intussusception the condition in the intestine may vary considerably: usually there is a

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[1] Medical and Surgical Journal, 1835.
[2] Transactions London Pathological Society, vol. xv. 113.
[3] Mém. de l'Académie Imp. de Méd., 1860.
[4] Loc. cit.
[5] Prag. Med. Wochenschrift, 1888.
[6] Quoted by Keen in "Keating's Encyclopædia."
[7] McAdam Eccles, St. Bartholomew's Hospital Reports, 1892.

more or less marked external, annular groove, and an internal annular ulcer, with more or less intestinal atresia and hypertrophy due to cicatricial thickening and contraction. Occasionally the calibre has been found to have escaped reduction, the coats of the intestine having united practically end to end. Thus Birch-Hirschfeld's [1] case of healed intussusceptions showed a quite ideal restoration of the continuity of the intestine. Then, again, the bowel may be made continuous by the interposition of a cavity between the two ends of the intestine.[2]

DESCRIPTION OF THE SPECIMEN.

Clinical History.—(Extract from the record in Cook County Hospital.) The patient was an Italian laborer, fifty-six years old, admitted in March, 1893. He could speak no English, and hence only an imperfect history was obtained; his friends could not supplement the information obtained during his life. Twenty years ago, when he was thirty-six years old, a double inguinal hernia made its appearance. Two years ago he was operated on, a permanent cure of the hernia on the left side following, but on the right side the hernia reappeared after eighty days. This was operated on again one year ago, but the hernia returned in forty days. The patient was small in stature, but well nourished, and in apparently good general health. The physical examination was also negative. In both inguinal regions were long cicatrices; no ring could be made out on the left side. On the right side the cicatrix runs over the summit of a tumor, the base of which was about eight centimetres square, the height about six centimetres. This tumor does not collapse on placing the patient in the recumbent position, but compression pushes the contents up into the abdominal cavity; as they pass into the cavity gurgling is heard. There is well-marked impulse on coughing.

On March 14, 1893, he was operated on again by Dr. E. E. Babcock. The hernial sac was isolated with much difficulty, and, as there was no distinct ring made out, there being simply a large opening into the peritoneal cavity, the sac was deligated and the ring margins were approximated with silk sutures.

Symptoms of diffuse peritonitis set in almost immediately. Death in thirty-three hours.

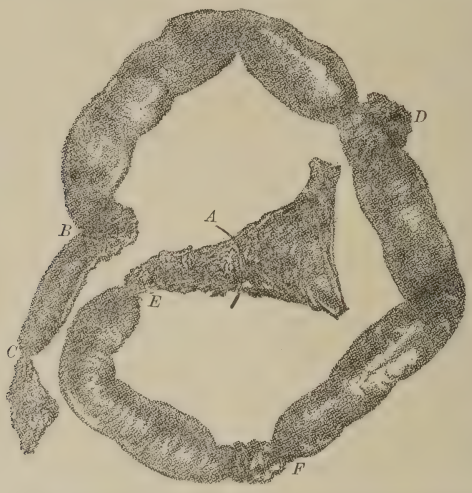
Anatomical Diagnosis.—Diffuse sero-fibrinous peritonitis; recent operation in left inguinal region, with puckering ligature closing a large opening in the peritoneum; adhesive pericarditis; chronic mitral endocarditis; cardiac hypertrophy; aortic arterio-sclerosis; pigment calculi in gall-bladder; four equidistant, symmetrical, ascending, healed, ileal invaginations.

Description of Invaginations.—Fifty-four centimetres below the pyloric orifice of the stomach occurs the first of four symmetrical, equidistant circular constrictions in the small intestine. The distance between each is exactly

[1] Thomsen, loc. cit.; Peacock, loc. cit.; Birch-Hirschfeld, loc. cit.

[2] Hill, Monthly Journal of Medical Science, 1845.

thirty-three centimetres. The first, second, and third nodules, from above downward, measure four centimetres in length, the fourth and lowest is five and a half centimetres long. The serous surface of each one of these constrictions is rough and shreddy, on account of chronic changes in the peritoneum,



Specimen of Four Healed, Ascending, Ileal Intussusceptions, Symmetrical and Equidistant.—*A*, needle passed through pocket in floor of upper intussusception; *B*, ascending intussusception; *C*, ligature around lower end; *D*, ascending intussusception; *E*, ligature near upper end; *F*, ascending intussusception.

which elsewhere presents only the acute changes above referred to. Along the convex border of each nodular constriction the wall of the intestine is stretched, but at the mesenteric border there are many folds and wrinkles and cicatricial thickening in the corresponding part of the mesentery. The upper margin of each mass shows its serous coat to be directly continuous with the general intestinal serosa, but the lower margin in each instance presents a distinct interruption in the continuity of the external covering, because at these points the intestine appears to pass upward into the lumen of the portion above after the manner of the typical intussusception, the fold formed by the junction of the returning layer with the sheath being distinctly visible in each instance as well as the entering portion, the cicatricial changes not having succeeded in obliterating the distinction between the various layers at the neck which, in this case, was the lower end of the various invaginations. In some places bands of fibrous tissue would pass from the outside layer to the entering portion. It was readily ascertained that the various layers of what were now thought to be old intussusceptions were so firmly adherent to each other as to render the invagination irreducible in each instance. At the constrictions palpation indicates great thickness and firmness in the intestinal wall. Commencing immediately below the pylorus and extending to the lowest nodular constriction, the small intestine presents a quite uniform dilatation of the parts above as well as between the equidistant circular areas of narrowing, measuring on an average five centi-

metres in diameter, the wall thickness also being perceptibly increased. Immediately below the last annular groove the bowel assumes its usual size. Water runs through quite readily, but slowest through the inferior constriction.

Examination of the cut and the internal surface of each one of the constrictions showed, in the first place, great increase in the wall thickness as compared with the normal intestinal wall,—the wall of the upper constriction measuring seven millimetres, that of the lower one centimetre. On opening the intestine along the mesenteric border of each nodule, after having first sent a stream of water through with considerable force, there was found to be quite an accumulation of undigested food above each constriction, the diameter of the lumen varying from three to eight millimetres, the canal being often tortuous.

The uppermost constriction showed on the mucous surface an irregular annular ulceration, in the floor of which were small cavities, sometimes intercommunicating, in places lined with a mucous membrane. At the neck of the intussusceptum the firmest sort of union existed. It was evident that the intussusceptum had undergone only a partial necrosis, and the pockets with the mucous lining were formed by irregular ulceration in the entering and returning layers. The lining of these pockets was shown to be intestinal mucosa by means of microscopic examination; there was an intense round-cell infiltration present.

The second area showed a distinct circular ulcer, with a smooth, hard floor and margins; here were two pockets near the upper limit,—*i.e.*, the apex,—lined with mucous membrane. These pockets were taken to mean that while the intussusceptum had largely disappeared, yet the very apex remained and union between the two opposed mucous surfaces had failed to occur; otherwise the union was very firm.

The third constriction showed a circular, granulating ulcer, corresponding in outline to the external annular groove; the floor was smooth and the margins rounded; at the upper limit were a few shallow pockets, whose origins were thought to be the same as those just mentioned above.

The lowermost zone of narrowing showed the layers of the intussusception quite distinctly; the mucous surface was an annular area, smooth and even, without any sign of recent ulceration, and the union between the various layers was firm and solid; at the apex was a pocket one centimetre deep; the valvulæ conniventes were lost over the intussusception and for a short distance above it.

As a general statement, applicable to all these constrictions, it may be said that at the neck or lower border the three layers of the intussusceptions can always be traced readily, because the union between the entering and returning layers always commences a little above the fold formed by the junction of the returning and the receiving layer. In the lowest invagination the various layers are quite distinctly traceable throughout, as here only superficial ulceration of the internal mucous surface of the intussusceptum has taken place, the apposed surfaces uniting.

From this description it has become evident that the at first puzzling formations are four symmetrical, equidistant, ascending, irreducible or healed, ileal invaginations.

Aside from the general interest which this queer specimen awakens on account of its very rarity and uniqueness, the particularly attractive feature is the question as to possible causes of the multiple intussusceptions, all of which are ascending.

The changes presented in the intestine all point to the existence of the invaginations for a very considerable time before death, just how long cannot even be approximately determined; the fact that these changes, reparative as well as destructive, are apparently equally far advanced in the various invaginations warrants the inference that they occurred quite simultaneously; this supposition is greatly strengthened by the uniform dilatation and hypertrophy of the intestine above and between the invaginations. An accurate and detailed circumstantial clinical history might perhaps have thrown some further light upon these points.

The similarity of these persistent invaginations to the agonal is quite marked; like the agonal, they are multiple, rather short, they are in the ileum, and they are ascending, which is not at all an uncommon feature of the invaginations of death. Agonal invaginations in the adult are, however, uncommon and seldom found; but, in spite of this fact, the suggestion is near at hand that perhaps the multiple, healed invaginations here described are, as it were, persistent agonal formations, the death-struggle implied terminating in favor of the patient. During the twenty years that he suffered with double inguinal hernia, as well as during the two operations mentioned, the patient may, of course, have been at the point of death more than once, and at such a time the invaginations may have occurred and then prompt inflammatory adhesions of the parts invaginated ensued.

Though the supposition that these invaginations are persistent agonal ones may seem far-fetched, yet the clinical history, imperfect and fragmentary as it is, certainly points to probable attacks of arrested or disturbed peristaltic action, during which the retrograde intussusceptions might be produced.

In a patient with double inguinal hernia of twenty years' standing, with the history of two operations for radical cure, there are certainly embodied great probabilities for the creation of those conditions under which, according to Leichtenstern,[1] ascending inflammatory invaginations occur, such as arrest of the onward movement of the intestinal contents, spasmodic, reversed, and interrupted peristalsis, conditions quite similar to what is thought to occur during the death-struggle, when agonal invaginations may form.

Consequently, it seems most reasonable to regard the ascending, inflammatory invaginations in this specimen as kindred to the agonal in their genesis, although it is by no means clear, under the generally accepted theo-

[1] Loc. cit.

ries as to the mode of production of the ordinary intussusception, why such special and peculiar circumstances should always be necessary in order to develop ascending invaginations, especially as long as such instances are recorded by reliable observers without any special complications of any kind whatsoever.

Conclusion.—In what has been written there is described a specimen of four healed, ascending, ileal invaginations.

It is not possible to determine positively whether they are primarily inflammatory or persistent agonal intussusceptions; the clinical history furnishes many incidents that point to a genesis similar to that of the invaginations of the dying, as there may have been periods of impending extinction of life as well as of arrested or of riotous peristalsis without any immediately threatening symptoms.

This specimen is extraordinarily and absolutely unique for the following reasons:

1. The number of the invaginations,—four.
2. Because all the invaginations are ascending.
3. Because all the intussusceptions have healed by sequestration of the intussusceptum and by firm union between the intestinal ends, all reparative and compensatory changes being so uniformly advanced as to lead to the conclusion that the invaginations are of simultaneous origin.
4. Finally, it is worthy of note that the invaginations are symmetrical and equidistant.

COLUMBUS BUILDING.

MEDDLESOME GYNÆCOLOGY.

BY A. E. FARNHAM, M.D.,
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ANY modern system of medical practice is generally abused before the mean between the two extremes is reached. This often happens because those who practise a specialty are very liable to attach to it undue importance. During the last two decades the treatment of female diseases has, to a great extent, been a mixture of ignorance, dishonesty, and, in many cases, injury. Physicians, reaping a rich harvest from this branch of medical practice, have not exerted themselves to educate the public or enlighten their patients in regard to the matter. Why? Because three-fifths of many physicians' office practice is made up of women who complain of this *bugbear*, "female weakness." The doctor's opinion or "say so" is taken as law and gospel by the patient, and there is no way to disprove what he says. Even if another physician is consulted and does not agree with the opinion of physician No. 1, the patient only goes away thinking that she

has some obscure trouble concerning which even the physicians themselves do not agree, and hence must of necessity be of a serious nature. How many physicians are honorable enough to tell a woman who has been treated by another physician for a "weakness" that she needs no treatment? That is, in cases that really do not require treatment, but where the woman herself firmly believes that she has such a trouble, and wants to be, or thinks she ought to be, treated? How many such honest doctors in your own town or city? Hold up the fingers of one hand and count, and then see if you have not fingers enough left for all practical purposes! How easy for the physician to tell a woman that the uterus is enlarged, or that there is an acute, or subacute, or chronic inflammation here or there; that the uterus is too low down (prolapsus) or tipped forward or backward; that the neck of the womb is bent or twisted, or that the mouth (os) of the uterus is open or too tightly closed; that there is a slight ulceration which will require applications; that there is a catarrhal condition of the mucous membrane, etc. Any opinion clothed with technical terms or a few Latin phrases causes the patient to become apprehensive, anxious for treatment, and will generally call forth the statement, "Well, I did not know what the trouble was, but I knew that I was not right there." Then (God forgive us) follows the speculum, sound, dilators, tenaculum, curette, gauze, sponges, balls of cotton, pessaries, etc. Applications of iodine, iodoform, acids, silver, etc. Escharotics, counter-irritants, stimulants, sedatives, lotions, douches, suppositories, *ad nauseam*. Oh, my soul! If the poor patient was not sore or inflamed before all this, she is sure to be afterwards, and must be consoled by the declaration, "Oh, I expected you would feel worse for a time." The patient asks, "When shall I come again?" and receives the answer, "Oh, day after to-morrow," or, "You will need to be attended to two or three times a week." The patient and trusting husband, anxious for his wife to get well, and whom the physician would not deceive about ordinary business matters, pays the bills, and waits, and trusts, and hopes. The patient keeps up the treatment as long as the doctor says that it is necessary, and does not even know when she is cured (?) until the physician, tired of the case, gives her that information.

Such practice is debasing to the women of America, degrading to the science of medicine, and demoralizing to the profession. The guilty physician may say to himself, "Well, she is bound to be doctored for such troubles, and some one else will treat her and get the money if I don't." Perhaps so, and perhaps not. At any rate, that is no excuse for not being honest, or failing to give honest and candid advice and counsel. Patients who really have confidence in a physician's skill and judgment would certainly be greatly influenced if told that in their case such treatment was not necessary, and might even be injurious. A good, plain, honest talk would set them to thinking, and render them sceptical and uncomfortable patients for a dishonest doctor. At any rate, even if such a patient should follow treatment elsewhere, the physician would have the no small satisfaction of

feeling that he had been upright and honest in the matter. It would also be a good example, giving other physicians the moral courage to take the same stand. An alarming proportion of our women are treated for such troubles. Single as well as married women, yea, girls who ought not to know that they have a womb, run to the doctor's office for a treatment that breeds familiarity and engenders a blunting of that beautiful modesty and sacred chastity which is her crown, and which has challenged the adoration of man since the race began. Our mothers and grandmothers lived to a good old age, brought up large families of splendid men and women, and never even heard of a speculum, and would not have known a pessary from a Gatling-gun. Common sense enters into medicine (or should) as into everything else. Now, stop and think a minute! What is the sense of a woman walking to a doctor's office, being "put in place," as the saying is, and then walking down his office stairs, and to her home, perhaps only to jolt over a rough road in the evening to some whist-party? They do it. They either were not "out of place," or, if they were, the treatment would certainly be rendered useless by their after-conduct. There is too much humbug about this kind of practice, and a halt should be called and a word of warning given. It may injure your practice to have the facts known by the public, and to have women know how you feel in regard to this matter. But the loss will not be great. Only a certain class will feel hurt. I assure my readers that I expect to suffer in more ways than one for writing this article, and must derive my only consolation from the fact that I have honestly discharged what I consider my duty to the wives and mothers of my country.

Is gynæcology, then, a humbug? A thousand times no! Are there, then, no real sufferers from female troubles which really demand treatment? Yes, certainly! I am not ranting against the science, but against the abuse of the same; not against the necessary, but the unnecessary. The advance made in gynæcology during the last quarter of a century has saved the sex from untold suffering. Many wonderful cures have been made and incalculable relief furnished by intelligent gynæcological practice. The good, the benefit resulting from the increased knowledge of treating female diseases, I will leave to abler pens to portray. I am writing up the other side. I know that thousands of women, willingly or unwillingly, are victims of medical treatment which not only is of no value, but in many cases, and in more ways than one, a positive injury. To whom shall we look for reform in this matter? Who is to be the teacher who will give honest information, and so educate the women of to-day that money, morals, and health will be deemed of some consequence? Ask the doctor. The introduction of instruments into the vagina is an unnatural procedure, and should only be resorted to when absolutely necessary in order to make a diagnosis or apply treatment. Physicians have been known to be slack or careless about the care of their instruments, and the parts of one may be poisoned by a discharge which from another has been allowed to dry upon the instruments

used. Every intelligent surgeon knows that absolute cleanliness is necessary in order to insure success in his work. All of the carbolic acid, corrosive sublimate, and other antiseptics in the world are of no value when applied to instruments covered with grease and dirt. Instruments must be kept several minutes in boiling water, and afterwards plunged into a strong antiseptic solution, in order to be certainly free from the germs of disease. How many busy physicians exercise this care? The delicate membrane which is found in the female generative organs is sufficiently abused and inflamed by the introduction of the cleanest and most appropriate instruments which it is found necessary to use. During the last month I have read of two cases of iodoform-poisoning, the result of an excess of that drug being left in the vagina. Several cases have come under my observation where ulceration and sloughing have resulted from the injudicious or careless use of acids.

There is such a thing as gynæcology run mad. Women, taking their cue from physicians, have abused the use of the fountain syringe. After the menstrual period it may be well for a woman to use some mild antiseptic douche for sake of cleanliness, but this everlasting sousing, rinsing, and injecting of fluids into the vagina is senseless and injurious. Many women think they cannot dress to go out without first resorting to the use of the fountain syringe. Others daily use a common syringe, injecting hot water, cold water, soap and water, cold tea, or borax or alum dissolved in water. This habit cannot be too strongly condemned. A woman without a discharge who uses the douche thus often may think that she is very neat, and all that, but there are other considerations to be thought of. Women should be taught that there is a natural secretion which keeps the mucous membrane of the vagina lubricated and moist, and is essential, or it would not have been secreted. I do not refer to a discharge such as leucorrhœa, but to the natural secretion of the parts, which is as essential as the saliva in the mouth or the moisture in the eye which comes from the glands there situated. To wash away this secretion robs the parts of their protection and brings two surfaces covered with mucous membrane in apposition, denuded of the very substance that is intended to prevent chafing, dryness, inflammation, and the absorption of septic material. Another craze, which, thank the Lord, is on its last legs, is the introduction of pessaries for every slight displacement, real or fancied, of the uterus. In most of these cases their use is too foolish to be ridiculous. Yet there are thousands of women ambling around upon the earth with ring pessaries and rubber horseshoes buried in their vaginal tissues. These instruments only hold the uterus in place by sacrificing the integrity of the vaginal walls. The walls of the vagina are put on the stretch and held in an unnatural and distended position until they lose their strength and the power of returning to a normal condition. Beside the support afforded the uterus by its several ligaments, the natural firmness and tenseness of the vaginal walls greatly aid in holding up or supporting that organ. Pessaries, by stretching and

distorting the vaginal walls, destroy this support. It is, at best, a false and unnatural support which is derived from a pessary. One lady whom I attended for other troubles told me that she had worn a pessary for five years, and stated that she could not ride or do any hard work, such as washing, without wearing the instrument. She could not get along without it. Why? Because, the vaginal walls being useless from long-continued stretching, the uterus had to depend upon artificial support in order to be kept in place. Fine state of things when a body has to have her insides propped up, or fall to pieces like the block house of a child! Beyond the inevitable injury to the female generative organs caused by manipulation, speculum, sound, cotton, applications, etc., is the fact that the patient's mind is turned to this part of her body, and every symptom noted and every slight pain exaggerated. Every physician well knows the wonderful influence that the mind has over the body. The susceptible mind of the female dwelling constantly upon the condition of the generative organs will in time produce a mental disease, if not one of the organs themselves. Physicians should be honest with their female patients, and discourage this worse than useless practice. There is honest, legitimate work enough to support any educated, intelligent physician. Women are the mothers of men, and in order to have a healthy race we must have moral, healthy women.

VENTRO-FIXATION OF THE UTERUS.[1]

BY A. J. PULS, M.D.,
Milwaukee, Wisconsin.

SHOULD all other means fail to retain a displaced uterus in the normal position,—*i.e.*, in the anteverted flexed position,—ventro-fixation of the fundus uteri seems to me the most rational procedure. So many different operative methods have been devised for the treatment of retroflexion of the uterus that I will confine myself simply to those methods which treat of the technique of fixing the uterus to the peritoneum of the anterior abdominal wall.

The various operators, P. Mueller, Czerny, Bardeleben, Tait, Olshausen, Saenger, H. A. Kelly, and Leopold, have each adopted somewhat different ways of stitching the uterus, and also have different methods of fastening the sutures to the abdomen. These differences, however, are of little or no consequence, as each case almost always demands a different manner of securing and fastening the sutures; then, again, the methods may vary, whether the operator remove one or both of the appendages of the uterus,

[1] Read before the Milwaukee Medical Society.

inasmuch as the sutures may be applied through the wounded surfaces near the cornu uteri.

In the five cases cited below, I followed Leopold's operation where convenient, but found it necessary to modify his method of suturing in Cases I. and II.

Case I.—Mrs. B., aged thirty-six, mother of two healthy children, the youngest ten years old, has for a long time been a sufferer from pelvic troubles and periodical convulsions, which have weakened her physically and mentally to such a degree that she seemed to be suffering from chronic melancholy. On her mother's side the patient gave a history of hereditary insanity. Upon examination of the pelvic organs, I found a firmly-fixed and retroflexed uterus, close to it both ovaries prolapsed, slightly swollen, and very sensitive to the touch. By repeated treatments with massage the uterus was replaced and held in position by a Shultz pessary for about six weeks. In the mean time the patient had lost much of her depressed feelings and pelvic pains. The menstrual flow became less profuse, but, as before, occurred every third week. After the removal of the Shultz pessary I was unable to maintain the normal position by the same or any other pessary that I applied. After a few days the uterus was sure to fall into its retroflexed position, and a convulsion would quickly follow. These attacks were so frequent when the uterus was displaced, and stopped so suddenly when the normal position of the uterus was attained, that I concluded to fix the uterus to the abdomen. Operation May 20, 1891. An incision three inches in length in the linea alba was made down to the peritoneum. An assistant, by introducing two fingers into the vagina, brought the uterus into the line of operation, and it was found unnecessary to lay open the peritoneal cavity, since the uterus was easily secured by passing silk-worm sutures through the fundus, which were stitched to the abdominal wall and ligated externally. The sutures were left in place until June 25, and the patient was discharged July 1, wearing a Sleigh pessary, that was removed three months later. The uterus remained in its anteverted position, and the patient has had no return of her former troubles.

Case II.—Mrs. D., aged thirty-three, married, fell from a window when in her sixth month of pregnancy, miscarried immediately after the accident, and has ever since complained of pelvic pains, chiefly in the left side and back. During her menstrual periods patient suffered severely, accompanied often with fainting spells and convulsions, of which she was totally unconscious. The menses were regular and profuse. On examining the uterus, it was found that the cervix was hypertrophied and badly lacerated, the fundus was retroverted and immovable, adherent towards the left, together with a mass that enclosed the left appendage. Operation June 1, 1891. The uterus was freed by Schultz's method, and the laceration of the cervix repaired by Emmet's operation. After removal of the sutures a pessary was inserted which held the uterus only in a latero-retroverted position, pressing against the diseased and enlarged left ovarian tissue, so that

the pessary could not be worn. For a time the patient felt a relief from her sufferings, although at her periods the fainting-spells and spasms would recur. An operation to fix the uterus to the abdomen and to remove the diseased appendages was performed October 24, 1891. After opening the peritoneal cavity, the uterus and left appendage were found fastened by a mass of adhesions to the pelvic tissues; upon loosening the same the diseased and enlarged cystic ovary and tube were excised; the right ovary and tube were replaced into their position after loosening a few membranous adhesions. The uterus was now fixed with three silk-worm sutures to the abdomen and the remaining wound closed with silk. The sutures were removed November 16, and patient discharged November 24, without a pessary. The patient has up to this time remained free from her usual attacks, although the uterus did not remain fixed to the abdomen, and had fallen back in a retroverted position. The patient has gained considerably in weight and strength, and is able to attend to her household duties. I may add that probably on account of a chronic bronchial affection the patient's coughing interfered with or caused the uterus to be torn from its place of attachment.

Case III.—Mrs. K., aged forty-six, mother of three children, the youngest eighteen, has lately suffered from metorrhagia and severe headache. An examination revealed a retroflexed and adherent uterus, star-shaped lacerations of the cervix, and prolapse of both vaginal walls. A pessary was fitted and bettered the condition to some extent, although the menses remained profuse and irregular, keeping her in a condition unable to work. Operation March 22, 1892. Both appendages were removed; the ovaries were found in a state of small cystic degeneration. The stumps of the appendages were sewed into the abdominal wound and a third suture was passed through the fundus and fixed to the abdomen. The patient left the hospital April 16, wearing a pessary until August 16. An examination showed that the uterus was firmly fixed to its new place of attachment. The patient has had no return of the flow and is again able to earn her livelihood.

Case IV.—Mrs. S., aged twenty-eight, married eight years, sterile, has been a sufferer from pelvic pain and irregular and painful menses since her marriage. The uterus lay retroflexed, and was brought into its normal position after several treatments and held in place with a pessary. The menses remained painful, and the pessary caused at times so much backache that she asked for an operation to avoid the wearing of the instrument. Operation April 19, 1892.

The right ovary and tube were found normal; the left tube and ovary were found enlarged and swollen, and were removed, and the stump was fixed into the wound with a silk-worm suture. Besides this, one suture was inserted anteriorly and one posteriorly through the fundus and ligated to the abdomen. The patient left the hospital May 7, wearing a pessary, which was removed August 30. The uterus was found fixed to the abdomen, and the patient menstruates regularly without pain, and is free from backache.

CASE V.—Mrs. R., aged forty-three, was operated on March 16, 1892, for excessive vomiting owing to adhesions of the large intestine to the left tube. Both appendages were removed and the peri-uterine adhesions were severed, and the uterus was freed, so that the fundus took its normal position. The patient enjoyed perfect health for nearly four months, when she first began to vomit after the meals. The vomiting became as bad as ever before, and she was soon losing flesh and strength that she had gained. An examination showed that the uterus was again retroverted and fixed. Operation October 14, 1892.

An incision was made in the line of the scar, excising the cicatrix. There was no adhesion of the omentum or of the intestines to the peritoneum. An examination of the intestine to which the previous adhesion had formed revealed no signs of any inflammatory tissue. On the right side, close to the pedicle of the excised right appendage, was found a band, one and a half inches long and very thick, adherent to a loop of the intestine, which accounted for her present troubles. The adhesion was easily ligated off on both ends, and the intestinal end was touched with a point of the thermo-cautery. The numerous membranous adhesions surrounding the uterus were also ligated and removed; the fundus was then attached to the abdomen with three silk-worm sutures and the wound closed with silk. The wound was dressed October 22, and the silk sutures removed.

THE TREATMENT OF NASO-PHARYNGEAL DISEASES AND THEIR AURAL SEQUENCES.

BY H. N. SPENCER, A.M., M.D.,

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(Continued from the November number, page 929.)

For the treatment of nasal obstructions existing in deviations and abnormalities of the septum and disease of the ethmoid, including hyperplasia of the middle turbinated, I must at present refer you to other sources for information. Before passing, however, from the consideration of these disorders of the nose which excite and prolong both retro-nasal and aural inflammation, a word or two of caution concerning the use of the handkerchief may not be thought out of place. The practice of forcibly blowing the nose exercises a most hurtful influence upon these parts in a state of disease.

In health it would be prejudicial and might, by the inflation of the ear which it frequently effects, lead to the injury of that organ. How much more important to guard against such practice where reason would dictate

care, where an existing irritation would be increased or capillary hemorrhage excited, and where morbific secretions may be forced with the air into the cavity of the tympanum!

The handkerchief, if used at all, should be used with great care. The relief is only momentary and imaginary. The very stimulus excites secretion and aggravates the condition from which the sufferer would be freed. It is better to throw the head back and gently draw the secretions into the mouth to be expectorated, or by bearing the discomfort for a short time experience the relief which nature, through a rest of the parts, affords.

Aural Complications.—Two-thirds of the diseases of the ear are located in the middle ear, and are of nasal or post-nasal origin.

It is sufficient to state in general terms that the diseases are catarrhal or purulent. Associated with the form of naso-pharyngeal disease which is under consideration, the catarrhal occurs more frequently than the purulent. In both catarrhal and purulent inflammation there is quite generally inflammation of the Eustachian tube; the treatment of which, in conjunction with the treatment of the naso-pharyngeal tract, is of the utmost importance. The treatment of necessity will vary with the variety and stage of the disease. A posterior rhinoscopic examination will reveal vastly more than inspection of the drumheads, and would often condemn the *pro forma* practice of Politzer's inflation. Otology has suffered much at the hands of routine practitioners. In acute inflammation of the ear, sedative and mild antiseptic spray applications should precede the use of the inflation-bag where indications suggest its employment. With re-establishment of free nasal respiration, particularly in the early stages, the necessity for inflation of the ear is frequently obviated. In children, where we may not be able to use the post-nasal spray, the head should be held well back and an injection of the fluid through the nostrils should be made by means of a dropper or an open-mouthed syringe. Such a solution as the following might be employed:

℞ Sodii biborat., gr. v;
Tinc. benzoin. co., ♏x;
Glycerin., ♏xx;
Aquæ ad ℥i.—M.

Two or three drops of pure olive oil may be applied after this, or an oleaginous solution composed as follows:

℞ Menthol, gr. iii;
Camphor, gr. v;
Benzoinol, ℥i.—M.

In quite young children a bland ointment may be used, and the crying of the child utilized so that with the fingers closing the mouth a deep inspiration is forced through the nostrils, and the application is thus drawn back. A rational general therapeusis is a valuable adjuvant to the local

treatment. Small doses of calomel, one-tenth to one-third of a grain, should be repeated at short intervals until catharsis is effected. Codeine, opium, or bromide of sodium may be required. Fever when it exists should be allayed. Later on tonics should be resorted to. In acute inflammation of the tube, especially approaching or involving the tympanic cavity, quinine is contraindicated. I have had occasion repeatedly to observe its evil effects where it has been administered under such circumstances. It appears the more important to mention this, as it is highly thought of by many as a remedy for coryza, and its use is even commonly resorted to by the laity, frequently in as large doses as ten to fifteen grains. So much applies to the early stage of inflammation. If there is deafness with a disagreeable feeling of pressure, the ear should be inflated with the air-bag. It is very necessary to avoid using force, which might cause an aggravation of the symptoms already existing or giddiness and even rupture of the drumhead. A persistent hyperæmia of the tube with hyper-secretion which does not yield to the spray applications that have been suggested or inflation by the air-bag, may be treated by injection of solutions into the faucial end of the tube through the catheter, boracic acid (ten grains to one ounce) or menthol (three to five grains to one ounce). Care should be taken to limit such applications to the tube, and on no account to force fluid into the middle ear. I shall not at the present time pursue the treatment of the ear further than this.

Constitutional Treatment.—In the care of these diseases I am satisfied that the local treatment absorbs too much of the time and thought of the attendant, and the advantage which might be gained by a judicious therapeutics in relation to the case is often not sufficiently regarded. There was a time when reliance was placed upon constitutional treatment exclusively. The infinitely greater success, however, of the specialist in this field with mechanical appliances and a purely topical treatment had the effect of driving out the general practitioner and depreciating the value of his services. We have only to consider the influence which is exerted by general disorders upon the causation and continued existence of post-nasal and aural diseases to satisfy ourselves in regard to the importance of freeing ourselves from this error. The tendency to glandular involvement under certain constitutional conditions is well known. This may manifest itself in the faucial tonsils and in the lymphoid tissue which characterizes the vault of the pharynx. It is generally recognized also that there exists a bond of sympathy between the erectile structures of the body, and that a correlating action explains the exacerbations in diseases of the nose which are known to occur during the catamenia. Closely allied to this are the disturbances which sometimes appear in conjunction with parturition. It is again of the greatest importance that we should recognize the connection between these diseases and a disordered digestion in its influence upon the circulatory system. It may be that gout and rheumatism are factors in the production of these diseases. It is unnecessary to refer to causes of nasal and aural

diseases which reside in syphilis, tuberculosis, the neurotic temperament, etc. The most valuable internal remedies according to my experience are mercury, iodide of potassium, cod-liver oil, the malt preparations, and iron, in the order in which I have mentioned them; which is only another way of saying that catarrhal diseases are engrafted in this order on those systemic disturbances which require for their remedy this kind of medication.

It is not sufficient to place mercury at the head of a list of drugs; its worth needs to be emphasized in a more decided way; nor would I have it to be understood that in its employment there must be the evidence or even the suspicion of syphilis. In the form of calomel in small doses it is of incalculable value in acute inflammation, and it has proved scarcely less valuable in the form of the bichloride or the biniodide in some cases of chronic inflammation. The latter is the preparation which I most frequently employ. The doses should vary according to susceptibility and the requirements of the disease from one-forty-second to one-tenth of a grain, to be taken three times a day after meals. Beginning with the smaller quantity, the dose may be increased as desired. In syphilitic affections of the nose and the ear I have observed excellent results from a plan of treatment for which I am indebted to my friend Professor W. A. Hardaway, and which may be found fully set forth in his "Manual of Skin Diseases."[1]

I have his permission to copy the following formula, which presents a happy combination:

℞ Potassii iodidi, ℥ss;
Ferri et ammonii citratis, ʒi;
Tr. nucis vomicæ, ʒii;
Aquæ, ℥iss;
Tr. cinchonæ comp., q. s. ad ℥iv.—M.
Sig.—Teaspoonful in half-glass of water after meals.

With a saturated solution of iodide of potassium, in addition to the above, there may be added of it as large doses of the salt as may be indicated. The susceptibility of some patients to the action of iodine with potassium has seemed to me to be overcome by the union of drugs in this formula. The tendency to coryza is removed by the ammonia and tincture of nux vomica, while the tonics have the desired effect of counteracting the depression which succeeds to the continued use of the potash salt.

The simultaneous administration of mercury, which he holds to be of especial value in tardy manifestations of the disease, is met with the following:

℞ Hydrargyri protiodid., gr. v–x;
Extr. opii, gr. v.
M. et div. in pil. no. xx.
Sig.—One pill morning and evening.

The tonic treatment needs scarcely more than the mention. Its indications are patent. I have intimated that cod-liver oil occupies the first place, par-

[1] Lea Brothers & Co., Philadelphia.

ticularly in the case of children of strumous habit. An emulsion made as follows will be found to be palatable:

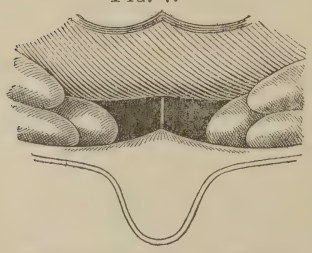
℞ Ol. morrhuæ, ℥iv;
Pancreatini saccharati, ʒi;
Pulv. acaciæ, q. s.;
Glyceriti hypophosphitis,
Syr. calcis lactophosphatis,
Aquæ, āā ℥iv;
Ol. gaultheriæ, gtt. xxx.—M.
Sig.—Tablespoonful three times a day after meals.

Extract of malt, and malt with hypophosphites, may be substituted for cod-liver oil in hot weather. The value of iron as a tonic and the mode of its administration are sufficiently understood. I deem it worth while to repeat the word of caution respecting the use of quinine. Not only should its use be condemned where there is a coexisting acute inflammation of the ear, but in those chronic inflammations as well of the nose and naso-pharynx, which would be affected unfavorably by an increase of hyperæmia. If quinine must be employed, a vessel-contracting drug, as ergotin, should be combined with the vessel-dilating drug.

HYPERTROPHIC RHINITIS.

Before discussing what would constitute a rational treatment for this form of post-nasal disease it is requisite that the mind should be clearly in possession of the etiological factors which are involved in its existence, and the true nature and limitation of the structures which really are, or are likely to be, implicated. The disease is peculiarly one of early life, and where it is recognized for the first time in middle or advanced life its commencement may be confidently referred to a much earlier period.

Fig. 7.



Post-nasal growths. (Drawn from life.)

Regarding its pathology, it is sufficient to state here that the glandular structure is mainly involved, the mucous covering participating with the lymphoid glandular mass in the hypertrophic changes which take place. The lymphoid tissue is mainly developed in the pharyngeal vault and the faucial tonsil, but is to be found in the respiratory region of the nose, constituting a potential nasal tonsil. This appears to me to be of peculiar significance, and alone sufficient to constitute a reply to those who would place strict limitations upon the diseases of the naso-pharyngeal space. A chief cause of the liability of children to disease of this tissue consists in the development and activity which characterize it at this period of life. Other predisposing causes are scrofula, with a lymphatic temperament, unsanitary surroundings, and the exanthemata,—*i.e.*, scarlet fever and measles. I have been able so uniformly to connect the disease with one or other of

these causes that I deem it unnecessary to mention others. Of exciting causes the predominant are exposure to wet and cold, and impeded nasal respiration as a consequence of this. In the adult exacerbations are experienced from the use of intoxicants, irritating snuffs and solutions (so-called catarrh cures), from irritating chemical fumes, and from dust with a dry atmosphere. The tendency of every continuing catarrhal affection of the nose in early life should be carefully watched that its development into this disease may be guarded against. I am persuaded that most of the so-called *chronic simple catarrhal* inflammations of adults have their origin here, growing probably out of the less pronounced forms of the disease, while the more aggravated forms would terminate in the hypertrophic inflammations. This disease in children in its physical manifestations is characterized by an exuberance of growth, which has given rise to such designating terms as *adenoid vegetations, adenoids, or adenoid growths*, as synonymes for hypertrophy of the pharyngeal tonsil. This characteristic disappears shortly after puberty, and as the term "adenoid vegetations" has come into such general use, it might be employed, in order to save confusion, to designate the disease in childhood as distinguished from the hypertrophy of adult life.

This form of catarrhal trouble is much more prevalent than is generally supposed. In the last five hundred consecutive cases in my private practice there have been forty-one of adenoid and post-nasal hypertrophy. Even this cannot be taken as a fair indication of the frequency in occurrence of the disease. Most of these cases have come to me as a specialist in ear diseases for the relief of an aural disorder, concerning the origin of which there was not always a clear understanding. The proportion of these cases which fall into other hands would require to be added to signalize with any degree of accuracy the relative frequency of occurrence of this to other diseases of the nose.

Symptoms.—The most conspicuous symptom is oral breathing, the complications and consequences of which are expressed in deafness, the changed countenance, disturbed sleep from snoring, a dryness of the throat and mouth on waking, frequent headache, depression of spirits, cough, and deranged digestion. These symptoms are greatly aggravated, as we would naturally expect, when the faucial tonsils are also involved. The diagnosis may be confirmed by a digital examination, which should be conducted with great caution by the inexperienced.

Aural Complications.—This is a disease of the naso-pharynx, *par excellence*, which is directly responsible for more diseases of the ear than any other one cause existing in the retro-nasal space, and inattention to which more frequently than is supposed explains the chronicity of many ear-diseases and their intractability in the hands of ill-qualified practitioners. It cannot be inappropriate in this connection to examine for a moment into the reasons for this, and I think we shall be in a better position to appreciate the importance of prompt interference, and shall have in our possession the

fondement of a rational therapeutics. It is generally understood, even among the laity, that in the early period of human existence there is a peculiar liability to ear-trouble. This increased tendency is explained by a peculiarity of structure, the length, width, direction, and position of the Eustachian tube in the child being more favorable to the transmission of disease. For these same reasons the physiological function of the tube is more liable to be interfered with. The disease which we are considering, in a most signal manner, presents all of the conditions which are favorable to the production of disease of the ear through these anatomical peculiarities and the ready liability to interference with its physiological duties to which the tube is exposed. The vitiated secretion from a greatly increased extent of surface is forced into the Eustachian orifice by growths which are often in direct apposition and must lead inevitably to inflammation of the tube. Disease of the middle ear becomes equally inevitable, exposed to the extension of inflammation to it from continuity as well as from interference with the equilibration of intra-tympanic pressure on account of the secretions and swollen condition of the tube. The interference with the action of the muscles which have for their office the opening of the mouths of the tubes and ventilation of the tympanum of course would constitute another cause of ear-disease.

The form of ear-disease which is likely to complicate adenoid vegetations has been, in my experience, largely purulent. Catarrhal inflammation of the tympanum is also frequently observed.

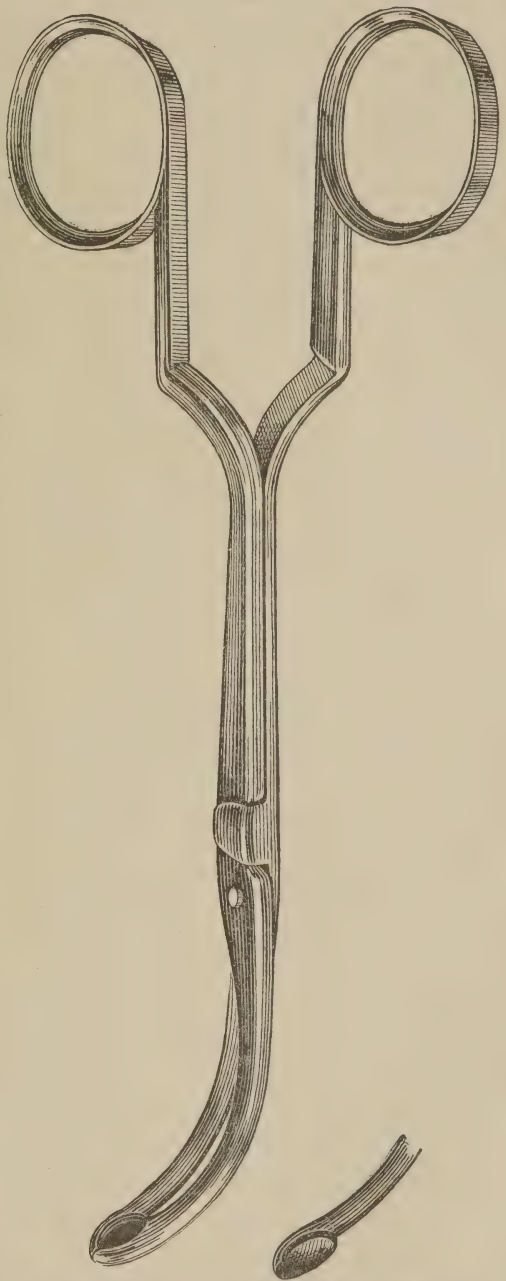
When we consider the serious nature and the prevalent character of the evils which arise in the course of this disease, it can be of little comfort to know that the growths will probably disappear under atrophic changes before adolescence.

Treatment.—If the patient is in fair general health, and there are no more serious accompaniments to the disease than the snoring and buccal respiration, then medical treatment may be employed. This would consist locally in the alkaline wash and in the application of glycerite of tannic acid. The nervous and vascular disturbance upon which the local disorder is engrafted will require judicious and persistent general care in the way of attention to hygiene, a dietary regimen, and the administration of tonics. You will be surprised at the results which will sometimes follow upon this course.

Iron is almost invariably indicated, and the syrup of the iodide of iron will often be found to possess a peculiar value. Its use should be continued for many months. It is borne better and its efficiency will be enhanced if given after meals and towards the close of the digestive process. It is altogether probable that cases will be found in which this will prove only an expedient, and sooner or later more effectual means will have to be resorted to. The urgency for surgical interference, let it be repeated, must be regulated by the nature and location of the symptoms which complicate the nasal malady and their liability to spontaneous improvement. Before proceeding

to operate for the removal of the growths the first step should be an examination with the finger, which will serve to define their character and location. It is only in very rare cases that a posterior rhinoscopic examination is practicable. The parts may be rendered more tolerant of the digital examination by a previous spray application of a four-per-cent. solution of cocaine. The child will require to be held by an experienced assistant, and with the exercise of tact much unnecessary alarm can be allayed. A few whiffs of chloroform may be a valuable help in the case of very nervous children. In recent and fragile growths, the examination and operation may be performed at one and the same time, the nail of the digit finger serving to scrape them off. In some instances the operation with the forceps can be performed without an anæsthetic. It will be necessary to practise patience and probably to make repeated efforts, but in very young children even it can be effected. The introduction of the forceps is attended with very much less discomfort than the introduction of the finger, and when the one has been submitted to the other will be borne.

Fig. 8.



Author's modification of Loewenberg's forceps. Natural size.

Nice care being taken, the little patient soon learns that the procedure is not attended with any great amount of pain, and becomes exceedingly interested in the bits which are brought away. Each portion of the neoplasm

is first located with the finger, and may be then readily engaged in the bite of the instrument. It is well to complete the operation with the finger-nail. Especially is it desirable to remove in this way the smaller excrescences which are to be found on the lateral walls about Rosenmuller's fossa and the orifice of the Eustachian tube. This is the more readily accomplished as the growths in this locality are always less fibrous.

The bleeding from the operation is very slight and ceases immediately. The only liability to hemorrhage would occur from engaging other tissues than the growths in the nip of the instrument. It may be added that from such an accident only is there likelihood in the operation here described of exciting otitis.

The forceps are to be preferred to the curette. Only the prominent growths need to be removed. Under an anæsthetic no more should be attempted. The radical removal of this inflammatory overgrowth is unsafe and unnecessary.

The best instrument is a modification of Loewenberg's forceps. The accompanying cut will serve to illustrate the alterations which have been made. It will be observed that the cutting edge is limited to the upper and posterior aspect of the bulbous extremity, and the blades are separated wide in front to avoid the danger of tearing the mucous membrane on the upper surface of the soft palate, or even of inflicting serious injury upon the vomer.

For the details of this operation under an anæsthetic, which may sometimes be required, I refer you to the text-books.

The operation by the galvano-cautery I would only mention to condemn. The inaccessibility of the parts and the liability to do serious injury, especially to the ear, exclude what might otherwise be a valuable method. In very rare cases it is admissible where the growths are exposed to treatment through the nose. And even then the cold wire snare is greatly to be preferred.

The after-treatment consists again in the alkaline wash and iodine applications, together with the internal exhibition of iodide of iron.

The treatment of the ear complication is rendered very easy by those same peculiarities of structure of which mention has been made, and which cause the ear in the first place to be readily affected.

The short and wide Eustachian tube and its lower position make inflation of the ear easy, and when the cause has once been removed diseases of the middle ear, apparently of the most serious and threatening nature, are cured spontaneously or yield with surprising readiness to the ordinary methods of treatment. The ear-trouble of later life, associated with hypertrophy of the pharyngeal tonsil, presents, as a rule, the consequences of disease and the evidences of neglect. But we now and then meet with grave ear-troubles in active process which are the result of the prolonged obstruction still continuing in the post-nasal space, which are only brought to a condition of arrest by the removal of the growth and protracted treatment of the ear.

The constitutional and preventive measures of treatment, it appears to me, have been sufficiently presented in what was said upon the etiology of adenoid vegetations, taken in connection with the general rules for treatment set forth under the head of simple catarrhal inflammation.

ATROPHIC RHINITIS.

Every case of hypertrophic rhinitis does not terminate in atrophy of the nasal and post-nasal tissues. No more is it true that every case of atrophy has been preceded by hypertrophy. They are generally regarded, however by the best authorities as antecedent and consequent. The connective-tissue elements undergo contraction, the ciliated epethelium is lost, and the consequences follow which are known so well to characterize this disease.

It is not confined by any means to the naso-pharyngeal space, and its treatment may be considered more thoroughly and with greater propriety in conjunction with diseases of the nose. Ear-disease, which is a product of this form of nasal inflammation, comes by extension, and in the tube and in the tympanum is characterized by corresponding changes, giving rise to dry catarrh. The treatment should be stimulating. A pigment of the yellow oxide of mercury (three to five grains to one ounce) I would recommend. Stimulating vapors may be applied through the catheter to the ear. If a high degree of deafness has been occasioned this condition is generally to be regarded as hopeless.

Finally, in the treatment of diseases of the nose and naso-pharyngeal space, so much depends upon technique, that want of success often may be ascribed to lack of this even where the most judicious and timely remedies have been selected.

After all, what I have said to you, gentlemen, in a single lecture on the treatment of these diseases, must be regarded as only suggestive.

CLINICAL LECTURES.

FRACTURE OF THE NECK OF THE HUMERUS; REAMPUTATION OF THE LEG FOR ULCERATION OF STUMP; EPITHELIOMA OF LOWER LIP, REMOVAL AND FORMATION OF A NEW LIP BY CHEILOPLASTY; COMPOUND GANGLION INVOLVING THE SHEATHS OF THE EXTENSOR TENDONS OF THE THUMB, FOREFINGER, AND RING-FINGER; STRICTURE OF URETHRA, TREATMENT BY EXTERNAL DIVISION; PARTIAL CLOSURE OF THE JAWS BY CICATRICIAL BANDS.

CLINICAL LECTURE DELIVERED AT THE UNIVERSITY HOSPITAL.

BY JOHN ASHHURST, JR., M.D.,

Barton Professor of Surgery and Professor of Clinical Surgery in the University of Pennsylvania; Surgeon to the Pennsylvania Hospital, etc.

FRACTURE OF THE NECK OF THE HUMERUS.

GENTLEMEN,—This old man fell on the ice this morning and sustained a fracture of the upper part of the right humerus. The injury was evidently severe, and is accompanied with a good deal of ecchymosis and considerable swelling. On admission there was an unusual degree of displacement, and, at first glance, the projection of the shaft of the bone, pushed up under the clavicle, simulated a dislocation. There is even yet great fulness from the quantity of blood in the pectoral muscle and around the joint. At the position where this ecchymosis is seen is probably the point of rupture through which the bone came.

The diagnosis between fracture and dislocation can readily be made by the application of Dugas's test, which consists in placing the hand of the affected side on the opposite shoulder and at the same time bringing the elbow of the affected side in contact with the chest. If this can be done satisfactorily, there is no dislocation. When I apply the test here, I find that the elbow can be brought to the chest-wall without difficulty. It is proper to state that there are some cases where the arm is so enormously swollen as the result of the injury that you cannot satisfy yourself that the test is properly applied; but when you can get the hand on the shoulder and the elbow in contact with the chest at the same time, dislocation may be excluded.

When we looked at the arm we noted marked shortening, which is still apparent, and by measurement this amounts to nearly an inch. This is of course the result of the overlapping due to the drawing up of the lower fragment. It is difficult to determine the exact seat of the fracture. It is rather higher than the ordinary fracture of the surgical neck of the bone,—that is, between the epiphyseal line and the attachments of the pectoralis major in front and the latissimus dorsi behind. We cannot say whether it is through the greater tuberosity or below it. The determination of the exact seat of the fracture is not important, for the treatment of fractures of the upper portion of the humerus, whether of the surgical neck, below or through the tuberosity, through the head, or through the anatomical neck, is practically the same.

In order to treat the case satisfactorily we must put the bone at rest. We can accomplish this best by using the chest as a splint. We need some additional protection, which can be afforded by moulding a pasteboard cap to the shoulder. This cap may be secured to the arm by a few turns of a spica bandage. We guard against swelling of the arm and spasm of the muscles by the application of a bandage from the hand up to the seat of fracture. In cases such as this, where there has been much contusion, it is well to apply over the shoulder, for a time, lint saturated with lead-water and laudanum. After a few days it is better to omit this, for in some cases sedative applications, if long continued, seem to interfere with the union of the bone.

The essential principles in the treatment of fracture of the humerus are, to consider the condition of the soft parts; to prevent swelling and spasm; to secure rest to the shoulder and arm by using the shoulder-cap, and by fastening the arm to the chest, thus fixing bone and joint thoroughly; and to support the wrist and hand in a sling which does not include the elbow, the object of the latter provision being to secure a certain amount of extension by the weight of the arm. It is sometimes recommended that a weight be applied to the arm by an adhesive plaster stirrup similar to that employed in fractures of the thigh, the weight hanging below the elbow, but a moderate amount of shortening in the arm does little harm. The case is different in the lower extremity, where it is desirable to have the limbs as nearly as possible of the same length. In the arm, shortening of half an inch or an inch would not be noticed.

I shall now dress this fracture. A folded towel is first applied to the chest to prevent excoriation where the two surfaces of skin come in contact. To fill the inequality between the arm and the side of the chest, I take two folded towels and place them in the axilla, holding them in position with adhesive plaster. The primary roller, from the hand up the arm to the seat of fracture, is next applied. The bandage is applied with the elbow in the position which it is intended that it shall maintain. If the arm be bandaged with the elbow in the extended position, and the forearm be then flexed, the bandage will become too tight and will give the patient pain. A fold of lint, wet with lead-water and laudanum, is placed around

the shoulder-joint and covered with waxed paper, and is held in place with a few turns of the bandage. The shoulder-cap is next put in place and secured by a roller. The arm is then secured to the chest by circular turns, and the crossings of the bandage are fastened with pins. The sling for the wrist completes the dressing. The patient should remain in bed for a few days, but after that may be allowed to move about.

REAMPUTATION OF THE LEG.

Our next patient is a man who had his leg amputated some time ago at another hospital, and, as not infrequently happens, the stump is not a satisfactory one. The tissues over the bone are tightly drawn, and there is a point of ulceration at the end of the stump, which at times is covered with a scab. I do not know whether or not this has resulted, as he thinks, from the bone having been left too long in the effort to save as much of the limb as possible. The surgeon is always tempted, and is urged by the patient and his friends, to save as much as can be done, and the flaps here may have been too scanty from the beginning, or the present condition may have been the result of sloughing. Whatever may have been the cause, there certainly is a large cicatrix, with this ulcerated surface, constituting what is sometimes called a mechanical ulcer, because it is kept up by mechanical causes,—that is, retraction of the soft parts over the bone, causing pressure. The whole stump presents the conical or sugar-loaf appearance. The best thing to do in a case of this kind is to perform reamputation, taking care to prevent a recurrence of the same condition.

In this operation I shall see that the flaps embrace only healthy tissue, and are shaped in such a manner that the cicatrix shall not come over the end of the bone. This can be best accomplished by the lateral flap method. In order to prevent loss of blood, I shall apply the Esmarch bandage and tube, and also a tourniquet over the femoral artery. I usually adopt this precaution in amputations. The effect of the Esmarch tube is to paralyze the vaso-motor nerves, allowing the capillaries to dilate, so that when the tube is removed there is free capillary bleeding. This can be avoided by controlling the circulation through the main artery for ten or fifteen minutes, until the capillaries have had time to regain their tone. In applying the tourniquet, the screw of the instrument should be immediately over the artery or directly opposite. The action of the instrument is direct only at those two points. If the screw is applied at one side of the limb, tightening of the strap will tend to displace the compress placed over the artery. In the case of the femoral artery we apply the screw of the instrument directly over the vessel, but in the case of the popliteal we apply the screw in front, over the knee, and a large compress diametrically opposite.

The operation which I prefer in amputations in almost all parts of the leg is what is known as the lateral flap method. As I usually perform it the flaps are cut from without inward, but the principle is the same as in the operation originally described by Sédillot, of Strasbourg. He began by

making an incision along the inner edge of the tibia about four inches in length. At the centre of this a double-edged knife was introduced and turned in such a way as to graze the fibula and point backward; the limb was then transfixed and the long flap cut from within outward, a short inner flap being cut afterwards. In muscular limbs it is difficult to shape the external flaps in this manner, and for many years, therefore, I have done this operation in a modified form, cutting both flaps from without inward. I begin the incision along the inner edge of the tibia and carry it downward three or four inches, then at the lower part make a slightly curved transverse incision around the outer half of the leg, and finally carry a third incision up on the under side. The flap is then dissected up, embracing all the tissues down to the bone. The inner flap, which may be cut a little shorter, but not much, contains the principal vessels. Having reflected the flaps sufficiently, a three-tailed retractor is applied, and the bone sawn through. It is desirable to cut the fibula shorter than the tibia, as otherwise it is apt to seem unduly prominent. I usually cut the fibula first, since if you divide the tibia first it is difficult to saw the fibula afterwards on account of the mobility of the part. As you see, the fibula is cut half an inch higher than the tibia. The bone will now be covered by the external flap, and the line of union will fall to the inner side.

Before loosening the Esmarch bandage we tie all the vessels that we can find. We can usually tie the anterior and posterior tibial, and possibly the peroneal. It is perfectly safe here, as in the arm, to include the venæ comites with the arteries. You should, however, be careful to avoid the nerves, as tying them would cause pain until the ligatures became absorbed, and might possibly cause neuritis, though this is not likely. If there is trouble in securing the posterior tibial on account of its retraction between the bones, it can usually be found by turning the patient on his face, so that the limb will be extended. Having tied all the vessels that can be readily found, I screw down the compress of the tourniquet over the femoral artery and loosen the Esmarch tube. All further bleeding points are then tied, and the wound is washed with a hot bichloride solution to stop oozing. The tourniquet is now removed, as the capillaries have regained their tone. A drainage-tube is placed across the wound and the flaps are brought together with silver-wire sutures. The ordinary antiseptic dressings are applied.

EPITHELIOMA OF THE LOWER LIP—REMOVAL—FORMATION OF A NEW LIP.

Our next patient is an old man who has been operated on once or oftener for epithelioma of the lower lip. He presents himself with a recurrent growth, involving what is left of the lip, with adhesions to the bone, which is itself involved superficially. There does not appear to have been any effort made in the previous operations to restore the part removed. The lip is almost entirely gone, the lower teeth are exposed, and the saliva is constantly dribbling from the mouth. This case does not seem so bad that

there is no prospect of improving the condition by cheiloplasty. What I propose to do is to remove the recurrent growth, exposing the bone and carefully examining it. I shall probably remove the external surface of the bone. I shall then take flaps from the tissues of the neck and bring them up to form a new lip. Operations of this kind are tedious, because, while operating, you have to discontinue the administration of ether. This allows the patient to recover consciousness, and then the etherization has to be resumed.

I apply clamps to each angle of the mouth to assist in preventing hemorrhage, and remove the diseased tissues down to the bone, controlling bleeding with hæmostatic forceps. The external surface of the bone is now thoroughly scraped away and all bleeding points touched with the actual cautery. In these plastic operations to restore the lower lip the best results are obtained by sliding flaps from the neck. Beginning opposite the symphysis of the lower jaw, I make on each side a curved incision extending downward and outward towards the angle of the jaw. The two flaps thus formed are dissected from the tissues below, and, after all bleeding points have been tied, are brought up to the position of the lower lip and united by hare-lip pins above the apex of the triangle which was left by their formation. The spaces left on each side are then brought together as closely as possible with sutures. Where the wound cannot be brought closely together the surfaces must heal by granulation. The ordinary antiseptic dressings are applied.

COMPOUND GANGLION INVOLVING THE SHEATHS OF THE EXTENSOR TENDONS OF THE THUMB, FORE-FINGER, AND RING-FINGER.

The next patient that I show you has a tumor of the hand of the exact nature of which we are not certain. It is what would be called pathologically a synovial cyst. It is a cystic tumor containing synovia-like fluid. The exact origin of these tumors is a matter of some doubt; some of them originate in the sheaths of the tendons, constituting what are called ganglia, while others originate as pouches from the synovial lining of the joint itself. Ganglia are divided into the simple and the compound. The simple ganglion is developed from the sheath of one tendon, while the compound ganglion is associated with the sheaths of two or more tendons, and is believed by some writers to be always of a tuberculous character.

The operative treatment of either of these conditions is not to be lightly undertaken,—either of the ganglion or of the cyst originating from the joint,—for in all these cases there is a certain risk of diffused inflammation and even death following. When a patient presents a small tumor of this kind in the neighborhood of the wrist, it is well not to interfere by any cutting operation unless the symptoms are such as to make radical treatment desirable. In many cases the tumor is simply a deformity. These cysts are apt to occur in women, and the patient is annoyed by the little projection, which, however, does not interfere with the functions of the part, and causes no pain. It is better to decline operation in such cases. The old method of

treatment was to rupture the cyst by a forcible blow, taking, for instance, the family Bible and smashing it down upon the tumor, breaking the cyst-wall, and allowing the escape and subsequent absorption of the fluid. The same purpose can be accomplished in a more surgical and less violent way by introducing a small knife flat-wise, allowing the fluid to escape, and slightly scarifying the cyst-wall. In this way adhesion of the opposing surfaces will probably be secured, effecting the cure of the disease. This is a simple operation, and one that will often prove successful. Some surgeons prefer the formation of a seton, but this mode of treatment is objectionable in that on the one hand it may not produce sufficient irritation to cure the disease, while on the other hand the irritation may go on to such an extent as to cause suppuration, and then the patient is subjected to some risk. The seton, therefore, is not to be recommended, as a rule.

Where the case is of such a character that you think it not likely to be cured by simple puncture and scarification, followed by pressure, then the next best thing is to excise the cyst bodily. This is, of course, attended with a little more risk, but it is obviously a radical mode of treatment, and upon the whole more promising and better than the seton. I do not, however, recommend any operation unless there is some positive indication for it. In the present case the cyst is rather larger than usual, and interferes with the usefulness of the hand. As you see, the tumor is about the size of a pigeon's egg, and I think that it originates in the sheaths of the tendons. It may come from the synovial membrane between some of the carpal bones, but I am disposed to think that it is a ganglion. The operation is facilitated by rendering the limb bloodless by the Esmarch bandage. We can then see exactly what we are doing. Sometimes the milder cases can be cured by the application of external irritants, such as tincture of iodine, followed by pressure. Where we do not think that an operation is justified, such treatment may be employed. These cysts will also sometimes disappear spontaneously, which is an additional argument against interference unless there is some special indication for operation. They sometimes have partly solid contents, either as a result of deposit from the cyst-wall similar to the deposit of fibrin that takes place in an aneurism, or from the presence of masses of cartilage.

Having applied the Esmarch bandage I make an incision down to the mass and carefully work around it so as not to cut any tendon. If the growth originates from a tendinous sheath, it is desirable to remove it without cutting the tendon itself. Three tendons are exposed, and the tumor originates from their sheaths. These are the tendons of the thumb, fore-finger, and ring-finger. The deposit in this mass is hard enough for cartilage, but I think that it is principally fibrous. I place the remnants of the sheaths in their proper position, introduce a catgut drain, and close the wound in the ordinary way.

Sometimes in opening ganglia involving the sheaths of several tendons there are found numerous little rice-like bodies similar to those found in

bursæ. These are of a fibro-cartilaginous or cartilaginous character. Their origin is not certain. They are analogous to the loose cartilages found in the knee-joint. Formerly they were supposed to be derived from the cartilages themselves, and to be of traumatic origin, but the prevailing view at present is that they are really the result of degeneration of the synovial fringes of the joint. One or two cases that I have seen have led me to adopt this belief. I have found one of these bodies not entirely detached but adherent to the synovial fringe by a pedicle, and at the same time a space worn by its pressure in the cartilaginous surface of the joint, from which but for its pedicle it might readily be thought to have been separated by violence. These rice-like bodies may be found in all these synovial tumors, whether bursæ, ganglia, or cysts of the synovial membrane.

STRICTURE OF URETHRA; OPERATION BY EXTERNAL DIVISION.

The next patient is a man who was admitted several weeks ago with rupture of the urethra from retention of urine following stricture. Those of you who recall the case will remember that the patient had had a very tight stricture for a number of years, causing at last complete retention of urine. No efficient treatment was adopted, and the urethra gave way behind the stricture, leading to extensive urinary extravasation, not only in the perineum but also in the tissues of the scrotum and of the thighs. When the patient was admitted, gangrene was impending, and in parts had actually occurred. Free incisions were made to relieve the tension, and the urethra was also opened in the perineum behind the stricture, allowing a direct communication with the bladder, into which a tube was introduced. The effect of this operation was immediate relief. The sloughs gradually separated, but we have deferred further treatment owing to the presence of the large granulating surfaces from which they came away. All of these have now healed with the exception of a large one on the inner side of the right thigh, from which a deep slough was removed. The urine appears to be all discharged from a perineal opening. If there is any fistulous orifice in the thigh we have been unable to discover it. The patient is himself uncertain as to the exact spot from which the urine comes. On one occasion, when the fistulous opening became blocked, the patient passed a little water in the natural way through the urethra. This occurred but once.

What I propose to-day is to attempt to restore the natural canal. I shall introduce an instrument as far as possible, and then divide the external tissues, making a perineal section, or rather an external urethrotomy, with or without a guide as we shall succeed or fail in introducing an instrument. In doing this operation it is well to have the hands and feet of the patient tied together as in the operation for stone.

I shall first try to pass an instrument through the urethra. In examining the case in the ward I found that I could carry a No. 15 sound well back into the urethra. Where you have an extensive stricture passing far forward, it is often difficult to expose the urethra without opening the tunics

of the testicle. If I succeed in passing this instrument, which is known as Syme's staff, through the stricture, it will simplify the operation. I shall then have the shoulder of the instrument in the perineum, as a point on which to cut, and this groove will enable me to carry the knife into the bladder. If I cannot pass Syme's staff I may get a filiform bougie through, and over it slip the tunnelled catheter-staff of Dr. Gouley. Even with nothing but the filiform bougie the operation is easier than if we have no guide at all. Sometimes it is necessary to open the urethra on a staff in front of the stricture and then trace the canal slowly backward. I first try Syme's staff, and it passes partially through the stricture, and it is probable that when the urethra is opened I shall be able to trace the canal back. I expose the instrument by an incision in the median line, and by a little manipulation it now passes completely through the stricture, which I next freely divide. I then pass a director into the bladder from the perineum, and with this as a guide I shall try to pass a full-sized sound. The prostate gland is quite large, but it was the stricture that caused the retention. A No. 17 sound passes without much difficulty, and I follow this with larger sizes until I reach No. 24. I shall next pass an English catheter and fasten it in, allowing the urethra to heal over it. This is not absolutely necessary, but I think that it is desirable. Two loops of thread are attached to the extremity of the catheter and one tail of a T-bandage is passed through each loop. This keeps the instrument in place. As soon as the catheter begins to cause irritation we shall withdraw it, and every two or three days pass a full-sized sound so as to keep the urethra dilated. Unless the dilatation is continued there will be a tendency to recurrence of the stricture.

PARTIAL CLOSURE OF THE JAWS BY CICATRICIAL BANDS.

Another patient that I shall show you is a man past middle age, who has difficulty in opening his mouth on account of cicatrices of the mucous membrane following syphilitic ulceration. He is anxious to be relieved. What I propose to do is to nick these adhesions and then try to stretch them, or, if the hemorrhage is not too free, I shall divide them more extensively. After dividing these bands the jaws will be separated with these forceps, the blades of which are serrated on their outer surface. This stretching will have to be repeated once or twice a day until the parts heal. If this operation does not succeed, and the contraction recurs, the best plan will be to remove a portion of the bone either by Esmarch's operation, taking out a small segment, or by the removal of the entire articulating surface of the lower jaw. Such an operation would probably allow the patient to open the mouth quite satisfactorily, but in this case the contraction is not so great as to require such a serious operation. Sometimes the jaws are separated by the introduction of wedges of gradually increasing size between the teeth. Even after the contracted bands are divided it will be necessary to continue the separation of the jaws by the use of wedges or by forceps such as I have shown.

CHRONIC GRANULAR CONJUNCTIVITIS.

CLINICAL LECTURE DELIVERED AT THE ILLINOIS STATE CHARITABLE EYE AND EAR INFIRMARY.

BY W. T. MONTGOMERY, M.D.,

Chicago.

GENTLEMEN,—For the physician who expects to practise medicine in the West or Northwest, I doubt if there is any disease of the eye which it is more important for him to be able to treat intelligently than chronic granular conjunctivitis. You will have some idea of the prevalence and importance of this disease in this section of the country when I tell you that of all the patients treated as house patients in this infirmary during the past two years, almost half were suffering from this disease or the results of it. This being a State institution, patients come in here from all parts of the State, so that a large percentage of them are farmers. The winds, dust, and bright light of this prairie country are factors entering in as causes of the disease. What I propose to do to-day is to show you as many phases of the disease as possible, illustrated by patients who are present, and mention the treatment.

Three principal forms of chronic granular conjunctivitis have been recognized,—the papillary, the follicular, and the true trachomatous. These various forms require different treatment, and the different stages of each form may require different treatment. It follows from these facts that we have no specifics for this disease, and never can have. In my judgment, the most important factors in the successful treatment of this disease are experience, intelligence, observation, and good common sense. So much by way of introduction.

CASE I.—This patient is a rugged boy, fourteen years old. He has had bad eyes for more than five years. His eyes are not painful, but are more or less sensitive to the light. You will observe that there is a general thickening of the lids, and that he is unable to open his eyes widely. When the lids are turned you see the red, velvety appearance of the palpebral conjunctiva, and that there is a muco-purulent discharge. The upper half of the cornea of the left eye is cloudy and vascular. This case illustrates fairly well the papillary form of chronic granular conjunctivitis. Now, as to the treatment.

As a rule, the local remedies which act best in such cases are the mildly-astringent remedies. When the muco-purulent discharge is considerable, the one- or two-per-cent. solution of the nitrate of silver will often act well. A light touch of the bluestone every second day may and often does act well. So may the ointment of yellow oxide of mercury, gr. x to ℥i of vaseline.

These remedies have all been tried in this case without benefit. We are now using what we call the weak sulphate solution, and the eyes are improving. The formula for this solution is as follows:

℞ Cupri sulph.,
Zinci sulph.,
Ferri sulph.,
Alum. sulph., āā gr. v;
Aquæ destil., ʒi.—M.
Sig.—Brush upon the inside of the lids once daily.

In the left eye, on account of the condition of the cornea, we are using the sulphate of atropia. I prefer to use this remedy in such cases in the form of an ointment.

℞ Atrop. sulph., gr. iv;
Vaselin., ʒi.—M.
Sig.—Apply to inside of lower lid once or twice daily.

How long must we continue this treatment? As long as the lids continue to improve or until the conjunctiva is smooth and healthy. This form of conjunctivitis is very obstinate, and it has been especially so in this case. This is the second visit of this boy to the infirmary. The first was more than a year ago. He was here for a number of months, and was under about the same treatment as he has been under this time, and was sent home apparently cured. A short time ago he came back in about the condition he is in now. The treatment will progress favorably for a time, but the eyes are liable at any time to flare up and in a few days be as bad as ever. This is one of the unpleasant features of chronic granular conjunctivitis. We must be on the alert to meet these unfavorable turns, and to do this experience, close observation, and sound judgment must come into service. Wholesome, nutritious food, abundance of pure air, and plenty of out-door exercise are important items in the successful management of these cases. Patients of this infirmary get plenty of good food, but the institution is overcrowded. We have room for one hundred and twenty-five patients, and sometimes have as many as one hundred and seventy-five. Then we have so little yard-room that about all the out-door exercise these patients are able to take is upon the dusty public streets.

Case II.—W. R., age eighteen, farmer. Right eye only has been sore for ten years. The left eye presents, as you see, a normal appearance, and the patient states that it has never been inflamed. Examining the right eye you observe that the lids are twice the thickness of healthy lids. On account of this extreme thickening there is marked ptosis. The cornea is so vascular that it presents a flesh-like appearance. The patient does not complain of pain. The eye is not even sensitive to light, and there is not any discharge to speak of from the eye. Turning the lids, you see, instead of the soft dark-red granulations we found in Case I., pale, dry granulations of almost cartilaginous hardness, the whole palpebral conjunctiva presenting a surface

similar to sand-paper. This eye presents a good picture of true trachoma of a severe type. But this case is more especially interesting on account of the disease being confined to one eye. Most authorities now claim that chronic granular conjunctivitis is an infectious disease. Cases of this kind, where one eye only is affected and has been affected for ten years, are enough to shake our faith in the infectious character of the disease.

Now, as to the treatment of this form of this disease. The standard remedy is the crayon of the sulphate of copper. Most cases of this kind will tolerate a free rubbing of the crayon to the granulations once daily. The atropine ointment should be used once or twice daily also. But with this treatment, even if there are no set-backs, it will require months to cure the patient.

It is in this form of the disease that the jequirity treatment is most efficacious. I have come to use it only in cases where the granulations are dry and hard and there is dense pannus.

Jequirity was first brought to the notice of the profession by De Wecker, of Paris, about twelve years ago. It has been found that a three-per-cent. solution of the pulp of the bean is the best strength to use. My plan is to take ten of the berries, remove the outside hull, and macerate the pulps in cold water for twenty-four hours, and then crush the pulps. This infusion is thoroughly rubbed into the conjunctiva by means of a bit of absorbent cotton until the surface is slightly denuded. One application in this manner is sufficient to light up the specific inflammation. This is characterized by more or less heat and swelling and by the presence of a well-defined membranous exudate. The acme of this inflammation is reached by the third day, and it requires about two weeks for the eyes to fully recover from it. We can often accomplish as much in two weeks with this treatment as can be accomplished in two months with bluestone or remedies of a like character. While the jequirity treatment is severe, in these selected cases I consider it perfectly safe and of great value.

Case III.—Frank T., aged thirty, a farmer. Has had inflammation of the eyes for fifteen years. He has been under treatment numerous times since his trouble began, and several times his eyes became quite comfortable, but soon got worse again. He was admitted into the infirmary only yesterday, and appears for his first treatment here to-day. His eyes are not painful, but are sensitive to the light, and he is unable to see his way. Both corneæ are vascular, but the right cornea, you see, is very much more prominent than the left, and is somewhat cone-shaped. This bulging is the result of the long-continued vascular inflammation, pannus. It has produced thinning of the cornea and it has protruded to this extent. Turning the lids, you see towards the retrotarsal fold, protruding from the surface of the conjunctiva, a jelly-like material.

This material exudes from the follicles of the conjunctiva from the slight pressure exerted in turning the lids. We have in this case an example of the follicular form of chronic granular conjunctivitis. There has

been a great deal said recently about the surgical treatment of this disease, pressing out the follicles, scraping out the granules, etc. Numerous forceps and instruments have been invented for this purpose. I am a warm advocate of this treatment in this form of the disease only. Pressing out the follicles is only the beginning of the treatment in these cases. It should be followed up by the bluestone or some other irritant.

The operation of pressing out the follicles is quite painful, no matter what means is used. The pain is lessened by the use of the four-per-cent. solution of cocaine. We have used it in this case. I have tried some of these specially constructed instruments, but what has served me best has been my two thumbs, and they are always on hand. The lids are turned and the thumb of the left hand is slipped well up into the outer portion of the retrotarsal fold, and the thumb of the other hand is placed over it, as you see, so as to engage the everted lid between the thumb-nails. Now, by a series of pressures, beginning at the outer angle of the lid and exerted with the thumb of the right hand from the everted margin of the lid towards the opposite thumb, the follicles are rapidly and thoroughly pressed out. No further treatment will be used to-day. The second day from this I shall expect to see a decided improvement in this patient's condition, and will probably begin the use of the bluestone to complete the cure.

REVIEW OF MEDICINE.

MEDICINE.

IN CHARGE OF JOSEPH P. TUNIS, A.B., M.D.,

Assistant Demonstrator of Surgery in the University of Pennsylvania; Surgeon to the Dispensaries of the Presbyterian and of the Methodist Episcopal Hospitals; Visiting Physician to the Children's Dispensary of St. Clement's Hospital and to the Church Home at Angora, Philadelphia.

Haig's Uric Acid Theory. (*Medical News*, September 16, 1893.) By Henry Sewall, Ph.D., M.D.

The work published by Dr. Haig was the result of nine years of research and study, chiefly on the cause and treatment of headache, from which he was a periodic sufferer. He found that on a meat diet his headaches became worse, while on non-nitrogenous food they diminished and disappeared. Further study led him to the conception of the close relationship of migraine to gout, and he conceived the idea that uric acid was the cause of the former as of the latter. Accordingly he began to estimate the amount of uric acid eliminated from his own person, and found that a constant difference existed in the quantity excreted during the period of

headache and that before and after the attack. By easy reasoning he connected the concomitant symptoms of the headache, the slow pulse, the high tension of mental depression, the disinclination for exertion of mind or body, the cold surface and extremities, with the character of the urine and the amount of uric acid contained in it. If these conclusions are correct, the practice of medicine has been placed at one bound, in some of its most important relations, upon a mathematical basis, and Haig deserves to be mentioned with Hippocrates and Harvey. Further clinical observations and careful research will be necessary to determine the correctness and trustworthiness of these observations.

Bronchial Casts in Connection with Mitral Regurgitation. (*Lancet*, July 29, 1893.) By Sidney C. Lawrence, M.D.

A boy of nine years of age enjoyed good health until November, 1891, when he had an attack of inflammation of the heart. Since that time he had been poorly nourished and unequal to attending school. Nine months later he began coughing up "queer things like little trees," without any fresh symptoms, rise of temperature, or dyspnœa. Four months later he presented the appearance of a case of typical acute pneumonia. While the sputum was not "rusty" it was very copious, and his cough was troublesome. A febrile temperature developed; his respirations increased, numbering from twenty to twenty-five per minute, and the boy appeared to get weaker and thinner. Ascites appeared, and two days before his death signs of œdema and congestion of the lungs developed. The fact that the boy was expectorating casts from August 4 to February 20 without any dyspnœa or rise of temperature was due probably to the fact that there was no inflammatory condition underlying their formation, but that it was simply a mechanical process brought about in the lobules by an excess of blood-pressure squeezing out the fibrinous material of the blood. This interesting report is accompanied by a drawing of one of the casts expectorated.

Leukocytosis as an Element in the Prognosis of Pneumonia. (*Boston Medical and Surgical Journal*, August 3, 1893.) By Richard C. Cabot, M.D.

Of forty-nine cases of well-marked croupous pneumonia, in which the blood was examined, leukocytosis was present in forty-one, of whom ten died; it was absent in five cases, of whom all died, and was doubtful in three cases, of whom one died. The same technique was used in all the examinations, and therefore, as far as these figures go, it would seem that, while the presence of leukocytosis is not a very hopeful sign (one-fourth of those in whose blood it was present having died), its absence makes the outlook bad. Moreover, in two of these five cases other reasons for giving a bad or guarded prognosis were not present. The individuals were both under fifty; were neither alcoholic nor weakly; there was nothing in the condition of the pulse, temperature, or in the physical signs in the chest to

lead one to expect a fatal result. Still, both sank with surprising rapidity, and without any reaction to vigorous stimulation and supportive treatment.

The Prophylaxis of Cholera. (*Gazette des Hôpitaux*, September 21, 1893.) By Dr. Brouardel.

In 1890, Roumania kept free from cholera by means of a rigid enforcement of the old-fashioned quarantine. After the agreement among the nations at the Dresden conference to substitute steam sterilization for the longer detention, the old method was done away with. The Roumanian government found it impracticable to educate the public and establish the conveniences necessary for carrying out scientific disinfection. The epidemic of 1893 consequently found them unprepared, and with the old barrier removed, the disease spread as in other countries.

England, on account of her isolated position, was allowed by the conference to follow a different course in discharging non-infected passengers after disinfection,—on condition that they remain under medical surveillance for a stated time,—and thus far it has worked successfully.

Paralysis following Measles. (*Gazette des Hôpitaux*, September 14 and 19, 1893.) By P. A. Lop, M.D.

Paralysis following measles is a comparatively rare affection, less than a hundred cases having been reported in all. This is probably due, however, to its usual transitory character and to the fact that it appears most frequently in the third week of convalescence—after the patients have passed from immediate observation. Two adult cases have been reported, but the usual time of its appearance is that of the appearance of other forms of paralysis.

In the cerebral form, which is most grave but less frequent, paralysis occurs preceded by spasmodic muscular movements and exaggerated reflexes. The electrical reactions remain normal, however, and the disease runs a rapid course.

In the spinal variety, on the contrary, the reflexes are rapidly lost, and the electric reactions are much modified, but the course is most frequently benign. It usually takes the form of paraplegia, commencing with formications and cramps, followed by retention of urine and incontinence of fæces. Occasionally it is of the ascendant variety ending in death by paralysis of the diaphragm. Its diagnosis is easy, as it occurs in convalescence from a fever; its course is rapid, from one to six weeks; the spinal form is frequent, and the patient always recovers.

Its pathology is, probably, a congestion caused by a specific bacillary toxine in the blood, which in the grave forms has produced a true inflammation and atrophic sclerosis.

THERAPEUTICS.

IN CHARGE OF ALEXANDER D. BLACKADER, B.A., M.D.,
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ASSISTED BY
D. I. EVANS, M.D.

The Administration of Calcium Salts in Hæmophilia, and Actual or Threatened Hemorrhage. (*British Medical Journal*, July 29, 1893.) By Dr. A. E. Wright.

After a very interesting paper describing a method for determining the condition of blood coagulability, "without which the necessary clinical data cannot be collected," the writer goes on to speak of the results he obtained from the internal administration of lime salts. He found that in capillary tubes of standard size filled with blood from the tip of the finger, the time required for coagulation was reduced from twelve minutes to six, as a consequence of an addition of a small quantity of calcium choloride to the extra-vascular blood. An excess of the calcium salt, however, appears to interfere with coagulation. He believes that there is a strong presumption that calcium chloride in small doses will prove of utility in the treatment of internal hemorrhage, aneurism, and hæmophilia.

The Treatment of Bronchiectasis. (*British Medical Journal*, June 3, 1893.) By Dr. I. Grainger Stewart.

The writer prefaces his article by saying that he does not think that the generally accepted theory is correct, that bronchiectasis is produced by the contractions of fibrous tissue either in the lungs or in the adhesions connecting the lungs with the thoracic wall. The cases that Dr. Stewart has seen would indicate that in the more typical cases there is an atrophic process in the walls of the bronchial tubes, and that, owing to this atrophy, the pressure of the air in the respiratory tract leads to an opening out of the tubes. As a further consequence accumulation and decomposition of mucus necessarily follows, giving rise to change in the mucous and other coats of the bronchi, and in the surrounding pulmonary tissue. His treatment has, therefore, been directed to prevent decomposition of the sputum and its consequences. We have little in our power to prevent the occurrence of the atrophy, and we can only slightly interfere with the pressure conditions which tend to dilate the weakened walls. For some time past he has tried the internal administration of antiseptics, at the same time using sprays and vapors of various kinds into the air-passages. Last winter he used, with eminently satisfactory results, intra-tracheal injections of menthol and guaiacol with olive oil. The preparations used were menthol, 10 parts; guaiacol, 2 parts; olive oil, 88 parts. Of this a drachm was injected into the trachea twice daily. The result was a speedy diminution and disappearance of the fetor, with improvement in all respects. In one case operative interference was tried, with good results.

Therapeutic Uses of the Nitrites and Nitrates. (*The Croonian Lectures*, 1893.) By Dr. D. I. Leech.

In considering the application of their pharmacological action to therapeutics the author calls attention to those points worthy of note. The first is the minute quantities which may influence the vascular system, and, as a consequence, certain functions of the body. The second is that notwithstanding their potency even large quantities of the nitrites and nitro-glycerin do not readily cause death. The third point to bear in mind is the evanescence of their action.

It is evident that these drugs are likely to be of most service in those cases where the heart is embarrassed owing to want of due relationship between its power and the calibre of the vessels through which it transmits blood. *Angina pectoris* is the most conspicuous ailment of the class. Clinical observations indicate that a large proportion of anginal attacks are directly caused by rise in tension. It has been suggested that nitrites relieve, not because they lower tension, but because they act as analgesics and remove the pain which causes high tension. The author thinks there is little foundation for this theory. There is no warrant for the assumption that nitrites or nitro-glycerin have a special analgesic influence on the cardiac plexus. In the reduction of tension by the nitrites we have three objects in view: first, to relieve pain as rapidly as possible; second, to avert a fatal termination; third, to prevent the recurrence of pain. The second object is for the time gained when the pain is removed. Those nitrites are manifestly in the first instance called for which act most quickly. It has been shown that propyl, isobutyl, and amyl nitrites reduce the tension in a few seconds, whilst sodium nitrite takes from two to five minutes to act, and ethyl nitrite about the same time. Even nitro-glycerin affects the circulation much less rapidly than do the fatty nitrites when they are inhaled. Manifestly, then, to relieve urgent pain and its concomitant danger the fatty nitrites should be inhaled; of these he recommends the isobutyl nitrite as more certainly relieving anginal pain than does the official amyl nitrite. Failure to relieve pain may arise, first, from the paroxyms being neuralgic and not due to circulatory changes; second, from the short duration of the action of the drug. There may be relief, but it is not complete. Third, some are curiously insusceptible to the influence of the amyl nitrite. Fourth, in very advanced cases, amyl nitrite may entirely fail, though it succeeded in former cases. In case of failure one of the nitrites whose effects are more persistent should be tried. Persons with high tension are less affected by nitrites than those with low tension. The author believes it far safer to employ somewhat large doses of nitro-glycerin than to resort to morphine injections, which in the later stages of angina he suspects hasten the fatal termination.

To prevent the recurrence of anginal attacks, he recommends the administration of a sufficient dose of the nitro-glycerin, the dose being determined by the effect on the patient. When nitro-glycerin is not well borne, owing

to the headache which it causes, sodium or ethyl nitrite may be tried, especially for the purpose of preventing paroxsyms. Of late the author has employed ethyl nitrate, which has distinctly a longer lasting influence in reducing tension than the nitrite.

Next to the relief of angina, the nitrites are of most service in the prevention of *dyspnœa* connected with other forms of cardiac and with pulmonary disease. As to whether harm may result from their use owing to a depressing action on the heart, the author believes that while large doses might work evil, in small doses the action is always in favor of the heart. He is not deterred from their administration by irregularity or weakness of the pulse, for they do not tend to cause syncope, or lead to heart-failure. While most useful in initial disease, aortic incompetence is no bar to their use in small quantities. Comparing their effects with those obtained from ether and ammonia, the author has no hesitation in saying that the nitrites are by far the most beneficial. For permanent short-breathedness the nitrites are of less use than for dyspnœic attacks.

In *pulmonary* asthma the effect of the nitrites is more uncertain. In slight attacks in nervous people their administration may cut short the attack, but when there is a large amount of secretion in the bronchial tubes, the nitrites generally are of little service. In *bronchitis* the nitrites must not be looked upon as curative agents; their administration should be reserved for the relief of dyspnœic conditions. In *uterine dyspnœa*, the relief afforded is usually transient. The nitrites cannot be relied upon to relieve the high tension often present even before renal disease declares itself. They act quickly but not continuously, and their frequent administration is not desirable. This condition is better met by milk diet and eliminants, but they may be of distinct service in relieving some of the unpleasant symptoms, headache, heaviness, and dyspnœa. The nitrites are only occasionally of service in relieving *Cheyne-Stokes's respiration.* In migraine and headache the nitrites have been much employed, and with some success, but in the author's hands its failures have far outnumbered its successes. It can be used only with advantage in those cases where circulatory conditions point to some degree of high tension. The dose in these cases should always be small in the first place.

PEDIATRICS.

IN CHARGE OF T. M. ROTCH, M.D.,

Professor of Diseases of Children, Harvard University; Visiting Physician to the Children's Hospital, Boston.

ASSISTED BY

E. M. BUCKINGHAM, M.D.,

Instructor in Diseases of Children, Harvard University; Visiting Physician to the Children's Hospital, Boston.

Secondary Infection in Chronic Gastro-Intestinal Dyspepsia of Nurslings. (*Revue Mensuelle des Maladies de l'Enfance*, August and September, 1893, pp. 337, 400.) By Marfan and Marbot.

Researches were made at a *crêche* receiving infants but not mothers. Children were fed at irregular hours with bad non-sterilized milk, variously and unintelligently modified, and with soups and various adult foods, and they presented nearly every form of digestive trouble. Fæces were never natural, and were of various colors, variously mixed, but seldom intimately so. White was the predominating color, and depended, as a rule, not on absence of bile, but on the presence of free fat, which masked darker tints; green was due to biliverdine, yellow to bilirubine and urobiline. Stools were acid, alkaline, or both, or neutral. At certain times, when the child cried, more than the common amount of mucus appeared on the napkins, and it is habitual to see the stools vary in appearance from day to day in the same subject. In normal fæces of babies at the breast but two micro-organisms are found, the *bacterium coli commune* and the *bacterium lactis aërogenes*. In dyspeptics these are found and many other species as well. With gastric troubles regurgitations are common, and perhaps vomiting. The breath, vomitus, and fæces smell of butyric acid. The gastric chemistry of artificially-fed infants is not fully established. Increased acidity is not due to free HCl, which may be diminished, but to the acid of fermentation. The abdomen soon becomes large from tympanites in cases of gastro-intestinal disturbance. Regions in contact with excrement become eroded and papular, and the child becomes cachectic. If under three months, cachexia takes the form of athrepsia, but after that the condition is different. There are muscular atrophy and pallor. The skin of the face is perhaps bloated. Dentition is arrested, sweating is profuse, and apparently the gastro-intestinal cachexia is identical with that of rachitis. The course of the disease fluctuates. The only constant lesions found post mortem are dilatation of the stomach, of parts of the intestine, and hypertrophy of the mesenteric glands. The mucous membranes are hyperæmic or anæmic, and only in some cases do they show the microscopical lesions of gastro-enteritis. The authors propose to show that these conditions are not due to inanition alone. For the above reasons they reject all the accepted names and propose *chronic gastro-intestinal dyspepsia of artificially fed infants*, or *anomothelasmia*. They propose to show that the broncho-pneumonia which often accompanies it

bears a direct relation to digestive troubles. In some cases, as Lesage has shown, the fæces are composed wholly of the *bacterium coli*. Some of them, called febrile toxi-infectious diarrhœa, resemble typhoid. More rarely cholera infantum precedes death. Other children die with symptoms of septicæmia.

Artificial feeding requires many precautions commonly neglected by the poor. The composition of the food ingested explains its difficult digestion, beside which it is commonly infected by micro-organisms. The residue of incomplete or defective digestion modifies the means of farther digestion, abnormal fermentations are produced, and bacteria swarm. The authors quote Van Puteren, Lesage, Booker, Vaughan, and Baginsky, in order to show the enormous number and enormous variety of abnormal bacteria found under these circumstances; their effect on coagulation of milk and on the formation of highly poisonous products. The strongest children may overcome the first difficulties described above and thus avoid the later ones. It is not so with the weak. Thus non-digestion causes denutrition, intoxication with its products, and infection with bacteria. Urinary analysis leaves no doubt as to the reality of auto-intoxication. The paper deals with infection by bacteria alone.

Autopsies were made in cold weather, and within twenty-four hours of death. No account was taken of anaërobic microbes, and the authors have sought to determine only recognized species, leaving others to be designated by *x*, *2x*, etc.

The organism was found to be invaded by the bacterium coli or the streptococcus or both, in seventeen cadavers out of eighteen dead of this disease. The authors consider it accepted that streptococci found within twenty-four hours of death have entered the organism during life, and they believe the same to be true of the bacterium coli. It is allowed that this second proposition is disputed, but they give numerous reasons and observations upon which their belief is founded.

In these autopsies the only constant lesions are gastro-intestinal distention and enlargement of the mesenteric glands. The next most common lesion is broncho-pneumonia. Other abdominal organs may be normal or anæmic or hyperæmic—the last if the child has succumbed to acute diarrhœa. These diseased organs, together with the blood of the heart and the juice of the spleen, have been examined, with the result of finding secondary infection in the majority of cases, most commonly with the bacterium coli or with streptococci.

It is very probable that the bacterium coli becomes virulent under the influence of indigestion, and enters through the mucous membrane, while the common enlargement of the mesenteric glands points to that route as the more common. It is questionable with regard to the streptococcus because many of the subjects presented skin-lesions which may have been the entrance, but it may be asked if the lungs do not furnish a gateway in certain cases. Formerly broncho-pneumonia was considered to be a complica-

tion due to debilty, but Sevestre described a peculiar form in infants under two years, with grave febrile diarrhœa, and suggests that it is due to intestinal infection. Lesage questions if pulmonary infection does not take place through the air, as the bacterium coli is found abundantly in the air of the rooms of these patients. Gaston and Renard estimated that this complication is more often due to the pneumococcus, but demonstrated that inhalation of coli bacilli may cause it. The authors have demonstrated its existence in cases of chronic gastro-intestinal dyspepsia. They acknowledge that infection may enter through the air, but point out that the streptococcus and bacterium coli are most often found in their own observations, that both these microbes live normally in the mouth, and that other organs are invaded as well as the lung, for which reasons they hold that probably the lung is invaded, at least often, by means of blood-vessels or by the lymphatics.

The writers call attention to the need for auscultation even in the absence of cough, and quote Parrot, whose experience teaches that in these cases râles or even absence of the normal respiratory murmur probably indicate induration. They suggest the use of the thermometer in all cases of this disease. As to the common time of infection, whether shortly before death or much earlier, they do not decide, but give reasons for each view.

SURGERY.

IN CHARGE OF HENRY R. WHARTON, M.D.,

Demonstrator of Surgery and Lecturer on Surgical Diseases of Children in the University of Pennsylvania; Surgeon to the Presbyterian Hospital, the Methodist Episcopal Hospital, and the Children's Hospital; Consulting Surgeon to the Presbyterian Orphanage.

A Case of Ligature of the Internal Iliac Arteries after Laparotomy. (See "Unterbindung der Art. iliac. int. gegen Prostatohypertrophie." *Wien. klin. Wochenschr.*, August 10, 1893, p. 583.) By Dr. August Bier.

In a report of three cases in which he ligated the internal iliac arteries of both sides with the intention of diminishing the blood-supply and reducing the size of hypertrophied prostates (and with good results in both of the successful cases), Bier relates that in one of them he operated by opening the peritoneum, and found the operation exceedingly difficult—far more so than the usual extra-peritoneal method followed in the other two cases. In view of the many favorable cases of ligature by the trans-peritoneal route it is wise to note this case, although it should be added that the patient took the chloroform very badly. In spite of elevation of the pelvis, the patient strained so constantly that the intestine had to be brought out of the abdomen before the ligatures could be placed, and the operation lasted two hours and a half. Death resulted from peritonitis in three days.

B. F. C.

Treatment of Fracture of the Tibia and Fibula at the Ankle. ("Dupuytren's Fracture." Traitement de la fracture de Dupuytren. *Gaz. des Hôpitaux*, July 6 and 13, 1893.) Lecture by M. Duplay.

Duplay recommends careful reduction of the deformity in these fractures (a special variety of Pott's fracture with tearing off of a portion of the external surface of the end of the tibia, which is carried outward with the lower fragment of the fibula), and retention by a plaster-of-Paris gutter-splint or by Dupuytren's cushioned internal splint. If reduction is impossible, it may be due to the interposition of a loose fragment between the bones, which should be removed by incision. The foot must be put up in adduction.

In irreducible or old fractures with deformity, osteotomy is indicated. If the fracture has simply been neglected, it may be possible within the first six to eight weeks to correct it manually. In case osteotomy is required a linear division of the fibula must first be attempted, and in case this does not suffice, a cuneiform osteotomy of the tibia must be added to it,—the base of the wedge being directed inward. Tenotomy may also be necessary. Two cases were shown and operated upon, and in one a detached fragment was actually found to have formed the hinderance to reduction, as it lay between the fibula and tibia. Good results were obtained. B. F. C.

The Extirpation of Popliteal Aneurisms. (Die Exstirpation des Poplitealaneurysmus. *Arch. f. Klin. Chir.*, xliv. S. 809.) By M. Schmidt.

The patient whose case is reported by this author had a good previous history, and had only complained of the present trouble for one-quarter of a year. There were two popliteal aneurisms. There was arythm of the heart and a strong carotid pulse. Two operations, four weeks apart, were performed after the method of Antyllus. The ligatures were of silk. In one operation the vein was ligated separately. Of twelve collected cases the author finds only one died after this operation.

The Operative Treatment of Congenital Dislocation of the Hip-Joint. (Weitere Mittheilungen über die operative Behandlung der angeborenen Hüftgelenksverrenkungen. *Münch. Med. Woch.*, No. 18, 1893.) By Hoffa (Würzburg.)

This author uses the following method to correct this deformity: After the ordinary Langenbeck incision for resection, a new acetabulum is made in the normal position. In the majority of cases a trace of the old acetabulum will be found present, while in all the bone will be found thick enough to permit of the new one being formed. In order that the head of the femur may remain easily in the socket, it is necessary to make its edges sharp. In some cases it will be found necessary to shape the head of the femur to conform to the requirements of the joint. After the reposition of the femoral head, all tissues that have undergone shortening and nutritive changes must be divided. These nutritive changes are more marked as the

patient grows older, and are present in all cases over three years old. Thus the operation is easier the younger the patient, when the subperiosteal division of the trochanteric attachments will suffice. In children over ten years old the following structures must be divided: (*a*) all in front of the joint and below the anterior superior spine; (*b*) the adductor; (*c*) the origins on the tuber ischii. The ligamentum teres and remnants of the capsule must all be removed. The wound should heal by granulation in a fixation apparatus remaining in position from three to four weeks.

A New Method for the Removal of Tumors from the Naso-Pharyngeal Space by the Osteoplastic Resection of both Superior Maxillæ. (Osteoplastische Resection beider Oberkiefer nach Kocher. Eine neue Operationsmethode zur Freilegung der Schädelbasis und des Pharyngonasalraumes. *Deut. Zeitsch. für Chir.*, xxxv. S. 423.) By O. Lang.

Kocher's methods consist in a median division of all the hard and soft parts, including the mucous membrane of the alveolar border, and the hard and soft palate; both superior maxillæ are chiselled through above the alveolar border and can thus be moved into such a position that free access is given to the naso-pharyngeal space. This operation the author performed under a mixed narcosis of morphine and chloroform, removing from the base of the skull a secondary sarcoma the size of a hen's egg. The intense hemorrhage made frequent tamponing necessary. The tumor was removed by the thermo-cautery from the soft tissues, and from the bone by the periosteal elevator. A consequent venous bleeding was stilled by tampons, the surface afterwards being cauterized. The after-dressing consisted of a tampon wrung out of a two-per-cent. chloride-of-zinc solution. The soft palate was sutured together, as were the superior maxillæ, by two silk sutures. The mucous membrane of the hard palate and the lip were sewn by a running suture. The tampon was removed in three days, and the patient could eat solid food one month after the operation. All the functions were normal with no relapse after ten months.

GENITO-URINARY SURGERY.

IN CHARGE OF WILLIAM K. OTIS, M.D.,

New York.

A Case of Suprapubic Cystotomy in which the Bladder was Distended with Air instead of Water, and Four Hundred and Ninety-five Calculi Removed. (*Jour. Surg., Gynæc., and Obstet.*, Atlanta, 1893, i. 1–5.) By W. W. Keen, M.D.

This author, following the suggestion of Dr. A. T. Bristow,[1] used air

[1] Annals of Surgery, June, 1893.

instead of water for the distention of the bladder in a case of suprapubic cystotomy, and has found it eminently satisfactory. Though the bag of Petersen was not used in the rectum for lifting up the bladder, the bladder was found to be better lifted up by the air alone than by the usual method with water in the bladder and the bag in the rectum. Moreover, it was not as soft as had been feared it would be, so causing doubts as to whether it was bladder or possibly intestine, but was distinctly hard and firm.

The use of air has the advantage claimed for it that there is far less danger of rupturing the bladder, because the air is so much more compressible than is the water, and it lifts the bladder better. The peritoneum was not seen at all, and therefore its distance above the pubes could not be measured; yet from the fact that the bladder rose three inches above the pubes, it was judged that the peritoneum was lifted off farther from the pubes than would be the case if water were used. The distinction between the resonant bladder and the intestine was very clear. It was also found to be a very great advantage in using this procedure that it gives a dry wound instead of one filled with blood and stained fluid escaping from the bladder. Ordinarily in suprapubic cystotomy the moment the bladder is incised the wound is filled with escaping water, blood, and urine, and the edges of the opening are entirely obscured. In Dr. Keen's case the edges of the bladder wound were as easily seen and seized as the edges of the wound of the skin. It was an absolutely visible wound throughout, and this was found to be of no small advantage. In most cases, of course, the air need not be filtered, as it enters a bladder already infected; but should there be any reason to filter it, nothing is easier than to tie a wad of cotton over the distal end of the tube of an ordinary Davidson or other syringe.

The bladder in this case was found to contain four hundred and ninety-five stones, the majority of them very small, and consisting of a small, round nucleus of uric acid surrounded by an incrustation of phosphates. The weight of the whole number was three hundred and eighty-six grains.

It is suggested that in cases of renal colic, when the attack has subsided and the stone reached the bladder, if the stone is not voided by the urethra within two or three days an evacuator should be introduced and the stone sucked out by the rubber bag. The obvious advantage is not only in freeing the patient from the pain caused by the small stone in the bladder, if such pain exists, but in preventing the formation of a much larger stone by subsequent phosphatic incrustation.

Experimental Investigations in Electrolysis of the Urethra. (Recherches expérimentales sur l'Électrolyse d'Urèthre. *Ann. d. Mal. d. Org. Génito-Urin.*, September, 1893.) By Dr. Tuffier, Paris.

This celebrated surgeon considers that after the investigations of Dr. Desnos,[1] only currents of very feeble intensity should be resorted to in using electrolysis in the urethra. This renders the process exceedingly

[1] See preceding number of this journal.

slow, renders many séances necessary, and keeps the patient under treatment for many months.

He has endeavored to discover the superiority of this method over simple dilatation in vain. When currents of high intensity are used, it is a method of cutting, and that is all. The chances of recontraction *are no less* than with simple dilatation or a well-performed cutting operation.

Urethrectomy, Partial or Complete, as a Method for Radical Treatment of Rupture of the Urethra, Fistula, or Organic Stricture. (*New England Medical Monthly*, March, 1893.) By Thomas H. Manley, M.D.

Dr. Manley concludes (*a*) that in all cases of traumatic rupture of the perineal urethra the tissues should be laid open at as early a date as possible, and the continuity of the lumen of the urethra should be then entirely restored by a urethrorrhaphy.

(*b*) In those urethral, perineal fistulæ which resist dilatation or other tentative measures, regardless as to whether they are of a traumatic or blenorrhagic origin, they should be resected and continuity restored in the passage by homologous approximation of the separated edges, the hiatus remaining being obliterated through linear elongation of the muscular coat.

(*c*) With those strictures, rebellious to tentative methods, not appropriate for internal urethrotomy or divulsion, when they are divided by an external excision, the occasion should be utilized to hew a gutter through the cicatricial tissues and to reconstruct the floor of the canal with the adjacent connective tissues.

(*d*) In all cases the most rigorous asepsis should be employed, and the aim, in every case, should be to secure non-suppurative primary union.

ORTHOPÆDICS.

IN CHARGE OF REGINALD H. SAYRE, M.D.,
Assistant to the Chair of Orthopædic Surgery, Bellevue Hospital Medical College, New York.

The Cure of Hip-Disease with Perfect Motion. (*University Medical Magazine*, August, 1893.) By James K. Young, M.D., of Philadelphia.

The author reports two cases of tubercular arthritis of the hip which had recovered with perfect motion, the verity of the cures being attested by a committee from the Philadelphia County Medical Society, before which body the cases were shown. In one of the cases immediate exsection of the hip had been advised previous to the child's coming under Dr. Young's care, as the only possible measure available.

These cases were treated by traction without immobilization, and show the good results obtained by this method. The long portable traction splint was used, and the patients encouraged to walk as soon as it was securely

applied; they thus secured the beneficial effects of air and sunshine. Traction was continued at all times, the apparatus being worn at night as well as in the daytime. Locally, compound iodine ointment was applied daily, either in the groin or behind the trochanter of the affected side. Constitutional treatment was employed throughout the entire course of the disease, compound syrup of hypophosphites being given in summer, and cod-liver oil in winter.

Naphthol Camphor in Tuberculosis. (*Annales d'Orthopédie*, August, 1893.)

The August number of this journal contains an account by Dr. Courtin, of Bordeaux, of a large abscess, associated with Pott's disease, which was cured by injections of camphorated naphthol, repeated four times. At the same time he reported a case in a child where similar injections of a mixture of naphthol one part, camphor two parts, and alcohol (ninety degrees) three parts, produced symptoms of collapse, from which the child was aroused with difficulty by means of frictions and subcutaneous injections of caffein. In the same number there is a report of an article by Dr. Reboul, of Marseilles, advocating the use of camphorated naphthol in tuberculous processes, which was largely discussed, and cases of grave intoxication resulting from this procedure were reported by Drs. Nélaton, Kermisson, Calot, and others. Most of these cases presented symptoms of collapse, with epileptiform seizures shortly after the injection, and the amounts injected varied from a Pravaz syringe half full to forty-five grammes. The abscess-cavity was promptly opened in these cases and washed clear of all the fluid remaining in it, which was followed by the cessation of the convulsions and restoration of consciousness. In a case where the injection had been made at the back of the neck, the patient complained of tasting camphor. In one case (Marchand's) the urine after the injection showed a marked quantity of albumen.

Recumbency in the Treatment of Pott's Disease. (*New York Medical Journal*, October 21, 1893.) By Dr. John C. Schapps, M.D., of Brooklyn.

This is a most excellent article, and in it the author advocates the use of a bed on rubber-tired wheels, the frame of which is made of gas-pipe and the body of canvas, stretched as tight as possible, in which a hole is cut at the point where the rectum is placed. On each side of the kyphos and across the sacrum are sewed small sausage-shaped pads to prevent undue pressure on bony points and steady the body. Straps are also sewed to the bed, which pass over the shoulders from the axillæ and buckle to the bed as near the root of the neck as possible. By means of a weight attached to the ordinary Sayre head-piece, traction is made on the spine, and in many cases supplemented by counter-traction applied by means of a pelvic belt, or else by adhesive plasters applied to the thighs, as for hip-disease.

The patient is thus kept constantly in the horizontal position on the back, which the author considers much better, as well as more comfortable, than the prone position recommended by Noble Smith, and the spine has the benefit of rest, while, the bed being on wheels, the patient can be moved from place to place and get the fresh air.

Recumbency is indicated as routine treatment, according to Schapps, as soon as the diagnosis of spondylitis has been made. In case of a patient wearing a support, progressive deformity or the presence of pressure sores should be regarded as demanding recumbency. Marked psoas rigidity denotes a considerable degree of activity of the disease, and probably an abscess. These cases should be treated in the horizontal position, and the limb elevated upon an inclined plane sufficiently to relax the psoas muscle. By means of adhesive plaster a weight is attached to the limb and traction made, as in hip-disease. As the muscle relaxes the plane is to be lowered. Pott's paralysis, or even a slight dragging with exaggerated reflex, should be regarded as an unequivocal indication for recumbency with all possible traction. Patients with abscesses should generally be treated in the horizontal position, always if the abscess is new or increasing. Night cries, a grunting respiration, peripheral pain referable to the spinal nerves coming from the seat of the disease, an inclination of the patient to lean on chairs, etc., indicate an insufficient support and the need of recumbency.

OPHTHALMOLOGY AND OTOLOGY.

IN CHARGE OF J. E. HARPER, A.M., M.D.,
Chicago, Illinois.

Tropacocaine in Ophthalmic Practice.—In the *British Medical Journal*, June 24, 1893, George Ferdinands reports the results of six months' use of tropacocaine in eye-diseases.

"1. Tropacocaine is more reliable and deeper in its action than cocaine, and the anæsthesia it produces lasts a little longer. Unlike cocaine, it anæsthetizes inflamed tissue,—at least, more deeply than does that salt. There is complete absence of the haze over the cornea which is so characteristic of cocaine anæsthesia. This was specially appreciated when needling. The strength of the solution depends on the requirement. For general use two or three per cent. is sufficient, and a five-per-cent. solution may be used with safety when anæsthesia of the deep-seated parts is required.

"2. Solutions of tropacocaine made with distilled water keep well and retain their strength for months. One solution (three per cent.) prepared in January last, although now a little cloudy, has not lost its activity. So far, no fungus has been noticed growing in the solutions.

"3. With the exception of one case, in which the ten-per-cent. solution was used, tropacocaine gave rise to no disagreeable symptoms. It practically has no mydriatic action; neither is it hæmostatic. But it certainly did not give rise to 'intense hemorrhage,' as was the experience of Seifert."

Some Remarks upon the Value of Peritomy.—In an article with this title (*New York Medical Journal*, June 17, 1893) Dr. John Dunn says, "The history of the condition under consideration is somewhat as follows: Neglected, more or less extensive ulceration, implicating the cornea somewhere in its outer third, but at some slight distance from the scleral margin; the ulceration is generally superficial. As time goes on, the process of repair sets in; vessels pass from the scleral edge to the ulceration; the ulcer becomes covered over with epithelium before the cells and new tissue that fill in the space destroyed by the ulceration have assumed their final non-irritable condition; the blood-vessels continue to grow in size or number until they bring to the seat of war more blood-cells than the process of repair needs, and thus it happens that there is such an accumulation of cells as to result in their own partial destruction; and that the process of repair is, to some extent, interfered with by the very agents that are necessary for its accomplishment, and, of course, the irritation about the former seat of ulceration is kept up. I am inclined to think that the subjects in whom this condition occurs are almost always 'lymphatics.' It is in these cases that a peritomy may be done with excellent results, so far as causing the disappearance of the photophobia and lachrymation is concerned. Whether this operation has any effect in lessening the density of the opacity resulting from the ulceration I am unable to say. Peritomy for pannus is done commonly enough, and the condition here mentioned is a form of pannus; and no originality is claimed for the application of this little operation in these cases of acute leucoma. The results are, however, sufficiently gratifying for it to have special attention. The operation is done as follows: Cocaine is used; the lids are held apart; the part of the conjunctiva which furnishes the vessels to the leucoma is seized and lifted with a pair of small forceps, and then incised for an extent a little greater than that which contains the enlarged vessels. The incision is made about two millimetres from the scleral edge and follows the curve of the cornea. Cool applications are then ordered for a day or two. It will sometimes be found that the pain about the eye will, as the result of this operation, be increased for twenty-four hours. In three or four days, however, the improvement in the condition of the eye will be noticeable."

Temporal Bones of Deaf-Mutes.—Holger Mygind (*Archives of Otology*, July, 1893) reports the results of his studies of the temporal bones of deaf-mutes in the Pathological Museum of the Copenhagen University. One hundred and ten specimens, taken from fifty-five cases, were examined. In more than half the cases the osseous parts of the audi-

tory organs were not the seat of any abnormality. In three-fourths of the cases reported as born deaf the bones were normal, while they were abnormal in four out of fourteen cases of acquired deaf-mutism. Congenital anomalies in the organs of deaf-mutes are less marked than the acquired. In ten out of fourteen cases of acquired deaf-mutism the pathological changes were more marked and extensive than in cases of congenital deafness.

The morbid changes found in the deaf-born are only exceptionally the expression of malformations or deformities caused by arrest of development, but in the majority of cases result from fœtal inflammatory processes.

Fœtal inflammatory processes sometimes form the basis of a new formation of osseous tissue following upon the destruction of the interior of the labyrinth. In cases of deafness acquired after birth, osseous matter was found deposited in the normal cavities of the labyrinth. In most cases this deposit was confined to a single division of the internal ear, and oftener than not to one or more semicircular canals. Often the osseous mass closing the cavity was not to be distinguished from the surrounding bone either in color or consistency, while in others it was ivory-like in texture and whiteness, and in a few cases it was chalky in consistency and color. Closely related to the osseous new formation was the actual chalky substance found in some cases, which, as well as the osseous mass, must be considered as the result of infantile otitis interna.

DISEASES OF THE LARYNX, NOSE, AND SURROUNDING STRUCTURES.

IN CHARGE OF J. PAYSON CLARK, M.D.,

Physician for Diseases of the Throat, Massachusetts General Hospital; Physician to the Throat Department, Boston Dispensary.

Ludwig's Angina. (*Revue de Laryngol., d'Otol.*, etc., May 15, 1893.) By J. J. Matignon.

The region affected is the space below the floor of the mouth, of which the sublingual glands with their surrounding cellular tissue are the important organs. The submaxillary gland may take part in the inflammation. Lesions of the buccal glands, the gums, the tonsils, carious teeth, etc., are among the avenues for the introduction of a virulent germ into this region. Nothing conclusive is known as to the bacteriology of this affection.

The symptoms are chills, intense headache, painful deglutition and respiration, and the simultaneous appearance of a tumor in the region described. The head is held erect, and movements of flexion or forced extension are impossible, and those of rotation are very limited. The consistence of the tumor is hard; fluctuation, as a rule, absent. The floor of the

mouth is elevated, swollen, and hard. Salivation is abundant and viscous. The generally high temperature, delirium, subsultus tendinum, excessive thirst, abundant sweating, thick, albuminous urine, indicate a peculiarly grave affection.

Surgical intervention is the only rational treatment. As soon as the abscess is opened the general and local symptoms mend. The incision should be external. If the phlegmon is bilateral it should be from the symphysis of the chin to the middle of the hyoid bone. When the mylo-hyoid raphé is reached, the fibres of this muscle are separated with a blunt instrument and the region of the sublingual glands is reached. If the affection is unilateral the incision is made parallel to and a finger's breadth below the lower edge of the lower jaw. The fibres of the mylo-hyoid are separated or cut. The benefits of the incision are almost immediate. The quantity of pus is often very small.

Contribution to the Question of the Possibility of the Transition of Benign Laryngeal Growths into Malignant. (*Archiv f. Laryngol. und Rhinologie*, vol. i., part i., 1893.)—A. Sokolowski reports the case of a tumor arising from the left ventricle of the larynx of a man aged sixty-four. There was also a smaller growth on the left ventricular band. They had all the clinical appearances of benign growths. The larger growth was removed, the smaller left, the patient not wishing to have more done. Four years later the patient returned for hoarseness, and the latter growth was found enlarged. It was removed with the galvano-cautery. Eight months later several nodules were removed from the left ventricular band. Microscopical examination showed them to have an adenomatous structure. A microscopical examination of the original growth (which had been preserved) was then made. It was shown to have been an adeno-carcinoma. A year later laryngotomy was done and all the affected tissues removed. The patient made a good recovery from the operation. Part of the growth had the appearance of a fibro-carcinoma. Had the original growth not been examined microscopically, one might have thought that an originally benign growth had become malignant. The slow advance of the disease is interesting.

Two Cases of Acute Œdema of the Larynx caused by Iodide of Potash. (*Archiv f. Laryngol. und Rhinol.*, vol. i., part i., 1893.)—E. Schmiegelow reports two cases of this somewhat rare affection. The first was a carcinoma of the larynx in which an antisyphilitic treatment was instituted to eliminate the possibility of syphilis. After about one gramme of iodide of potash had been taken, laryngeal œdema developed to such an extent that tracheotomy was required. In the second case, which was thought to be syphilitic, the epiglottis, arytenoids, and ventricular bands were œdematous, and the patient suffered from dyspnœa. On administering iodide of potash for a day or two the œdema and dyspnœa increased. On

leaving off the iodide of potash the œdema quickly improved in both cases. Iodide of potash was given later in the second case without causing œdema.

DERMATOLOGY.

IN CHARGE OF W. A. HARDAWAY, A.M., M.D.,
Professor of Skin-Diseases in the Missouri Medical College, St. Louis.

ASSISTED BY

C. F. HERSMAN, A.M., M.D.,
St. Louis.

The Bhau Daji Treatment of Leprosy. (*British Journal of Dermatology*, July, 1893.)—Boyd gives some account of a treatment employed by Bau Daji, a native Indian physician, as long ago as 1859. The treatment was kept secret, presumably that the introducer might have time to thoroughly test its merits before placing it before the profession. Bhau Daji died in 1874, before he had made public his method of treatment, but not before he had told his secret in confidence to three persons. It is through one of these that the writer came into possession of his knowledge of the remedy used. It has been impossible for the author to gather all the documents and reports bearing upon the results of the treatment, as many which were known to exist could not be found. From the accessible records the author thinks that enough evidence of the beneficial effects of the treatment can be gathered to warrant its further trial. The remedy relied upon was the oil of the *Hydnocarpus inebrians*, or, as it is called by the natives, oil of kauti. The drug is given in the morning, in doses of from ten minims to half an ounce administered in boiled milk; the patient was then rubbed all over with the oil, which was removed by a warm bath in two hours. In some cases the oil was again applied after the bath, and allowed to remain till evening, when it was wiped off, and the patient ordered to walk around till he was in a perspiration. In other cases no oil was used after the bath till evening, when it was again applied over the whole body, and the patient slept thus anointed. The article closes with a report of a number of cases in which benefit seems to have followed the treatment. Two of these cases are said to have entirely recovered from well-marked leprosy, and one is reported to be now living, remaining entirely well.

Multiple Myomata of the Skin.—Wolters (*Archiv für Dermatologie und Syphilis*, 1893, Heft ii.) records two cases of multiple myomata of the skin in which the diagnosis was proved by microscopical examination. One of the cases presented the peculiarity that the urine contained sugar and the eruption somewhat resembled xanthoma diabeticorum. The writer reviews the few well-established cases in the literature, and concludes that no ground

for Besnier's opinion, that the affection occurs only in the old and in women, is afforded. The fact that the tumors were most numerous on the extensor surfaces, where hairs are most plentiful, argues for the origin of the myomata from the arrectores pilorum. The author rejects the complicated classification of the myomata proposed by Schwimmer and Babes, preferring the simpler one of Doyon and Besnier: (1) myomes simples; (2) myomes dartoiques. The objection to this classification is that it is too comprehensive, embracing the diffuse hypertrophy of the muscular layer in elephantiasis, fibroma, sarcoma, and even of the vessel-walls in angioma. It would be more precise, the author thinks, to say (1) myomata cutis—those tumors developing from pre-existing normal muscular elements, as the muscles of the hair, gland, vessel; (2) myomata tunicæ dartos—those tumors developing from the subcutaneous muscular layer on the genitals and breasts.

Hardaway (*American Journal of the Medical Sciences*, April, 1886) reported a case of multiple myomata of the skin which seems to have been overlooked by the author in his review of the literature of the subject. In this case microscopical examination showed the tumors to have originated from the smooth muscle fibres of the vessel walls.

The Nature of the Vernix Caseosa. (*British Journal of Dermatology*, July, 1893.)—Beatty reports the examination of the scalp of an infant which had died a few minutes after birth. The scalp was covered with vernix caseosa, and this was found to be derived from the sebaceous glands, and not, as Unna has stated, from the sweat-glands. When stained with osmic acid, the fatty layer on the surface was found to be directly continuous with the fat which filled the sebaceous glands.

The Treatment of Certain Skin Affections by Thyroid Feeding.—Davies (*British Journal of Dermatology*, September, 1893) calls attention to the effect the administration of the thyroid has upon the skin when administered in myxœdema. Bramwell has already made use of this fact in the treatment of psoriasis, with good results. The author reports four cases of chronic affections of the skin in which the use of the tabloids of thyroid extract now prepared by pharmacists seemed to benefit the condition. The first case was one of psoriasis, in which a cure resulted in eight weeks under a dose of one tabloid a day.

The second case, also one of psoriasis, had been treated with arsenic and chrysophanic acid with some benefit. The thyroid tabloids were used in this case in the dose of one a day, the other remedies being stopped, with a cure in three months.

The third case was ichthyosis. One tabloid a day was administered, and in a month the condition was much improved.

The fourth case was one of chronic eczema with oft-repeated relapses. In the last acute attack the tabloids were given in conjunction with other

remedies, and the improvement was much more rapid than it had been on former occasions.

The Effect of Massage upon the Temperature and Sensibility of the Skin.—In a report of the recent meeting of the British Medical Association, the *British Journal of Dermatology* (September, 1893) quotes the opinion of Dr. Symons Eccles in regard to the effect of massage upon the temperature of the skin, as expressed in a paper read by him before the Section for Dermatology. Dr. Eccles, after experiments on ten healthy persons, arrives at the following conclusions:

Light friction reduces surface temperature. The temperature may fall from two to four degrees below the temperature of the untouched skin.

Firm friction, kneading, and rolling of the skin increase the temperature.

If one limb be firmly and thoroughly rubbed and kneaded, not only is the temperature of the member operated upon raised, but the temperature of the opposite member is also elevated.

The immediate effect of massage on the cutaneous nerves is as follows: Firm friction increases tactile sensibility and improves local sense. Kneading immediately decreases both and reduces temperature sense for heat and for cold to a less extent.

After a week's thorough massage of the same limb the sense for heat and cold was more acute than on the opposite side; the resistance of the skin to the passage of electrical currents is diminished.

PATHOLOGY.

IN CHARGE OF ALLEN J. SMITH, A.M., M.D.,

Professor of Pathology in the Medical Department of the University of Texas, Galveston, Texas.

Pseudo-Myxoma Peritonei, with Observations on the Formation of Hyalin. (*American Journal of Medical Sciences*, October, 1893.)—Under the name *pseudo-myxoma peritonei* has been indicated a gelatinous formation found occasionally on the peritoneal surface in women, the subjects of gelatinous ovarian cystomata, in whom the cyst-walls are apt to have been thin-walled and probably ruptured in one or more places during the existence of the growths. In some instances active growth of epithelial elements transplanted from the ovarian cyst to the peritoneum takes place with the development of secondary cysts in the new situation. In others the gelatinous substance remains passive, being held in a delicate fibrous outgrowth from the serous surface, the result of reactive inflammatory processes. Dr. H. W. Bettmann, of Cincinnati, working upon a specimen from Pawlik's clinic at Prague, reaches a number of interesting

results as to the nature and origin of this formation. The case was a woman, sixty-five years of age, from whom had been removed a cystic ovary; the abdomen was found at operation to be filled with gelatinous masses; peritonitis ensued and death promptly followed. At the autopsy the pelvic peritoneum was found full of gelatinous growths; the parietal peritoneum was covered with nodular gelatinous masses, as too the greater omentum and the mesentery. Specimens of this gelatinous material were fixed in bichloride of mercury solution and hardened in alcohol. On section the substance presented a gray, mesh-like appearance, hardening poorly; and embedded in this, in irregular strips and plaques, was to be seen a firm white material. Under the microscope the gray substance was found to be composed of fat-cells and myxomatous connective tissue, arranged with no definite relation to each other. Fat-cells were to be seen embedded in the ordinary stellate cells of the mucoid tissue; here and there true adipose tissue could be observed, but the greater portion of the mass was composed of the myxomatous tissue. The firm white masses which lay in the mucoid substance could be observed separated from the latter by aggregations of leucocytes. Blood-vessels were quite numerous and often of large size. This firm substance was of a homogeneous structure, shining, white, unaffected by acetic acid, by mineral acids, ammonia, or ether, and in its other reactions by stains could be identified as hyalin. The author after thus describing the histology of these gelatinous nodules occupies himself with the question of the origin of the hyaline masses. Here and there in this material could be seen lakes of blood, relatively unaltered, with well-defined fibrinous trabeculæ running from among the blood-corpuscles out to merge with the surrounding homogeneous hyaline substance. Careful staining and the use of the higher microscopic powers revealed that here and there in the hyaline material were enclosed cells, apparently leucocytes; showed, moreover, that the substance was in some parts more or less trabeculated, and that both in the trabeculated and in the homogeneous portions were canals of varying size, often anastomosing with each other, often isolated and pursuing no definite course. From this appearance and from its evident close relation with the strands of fibrin in the blood-lakes, Bettmann is disposed to regard the substance as identical with the "canalized fibrin" of Langhans. The fibrin is, however, apparently but one source for the hyaline material, and quite insufficient in amount to account for the whole. Examining the masses of blood, it could be noted that as one approached the margins of the lakes the corpuscles became fainter and fainter, and gradually disappeared in the hyaline substance, being evidently bodily transformed into this material. This view of the origin of hyalin from blood-cells is not held by the author alone, Langhans, Oeller, Takács, and Obrzut being named by the writer as sustaining the same opinion.

As to the origin of the mucoid matter, the author is unable to give a definite opinion, but suggests that, as the hyaline matter apparently arises from alteration in the blood, the mucoid substance might also arise from

the same source. This suggestion he endeavors to strengthen by quoting a number of instances in which myxomata arose in situations of previous traumatisms, the myxomatous tissue presumably in these cases coming from plasmatic exudations or blood-corpuscles. As to the origin of the stellate cells and fat-cells in the specimen, the writer refuses to venture an opinion.

Aside from the value of this report as indicative of the existence of a malignant tendency in gelatinous and papilliferous ovarian cystomata, the confirmatory evidence adduced by Dr. Bettmann of the origin of hyaline material from coagulative and degenerative changes in the blood must be regarded as exceedingly valuable. His conclusions differ from the majority of observers in that few recognize the blood-cells as a source for this substance, looking upon the process as one identical or similar to coagulation and fibrin formation.

CLIMATOLOGY.

IN CHARGE OF GUY HINSDALE, M.D.,
Lecturer on Climatology in the University of Pennsylvania, Philadelphia.

The Climate of Chicago. (*Bulletin No. 10, U. S. Weather Bureau*, pp. 137.)—Professor Henry A. Hazen is the author of this elaborate publication, which covers the climatic history of Chicago for the last twenty-two years. There are sixty-one tables and twenty-six illustrations, covering every feature of temperature, wind, precipitation, humidity, and cloudiness, storms, fogs, and frosts incident to that station. Professor Hazen shows that there is no ground for believing that the seasons are changing, that while the mean temperature from 1850–1870 was recorded as from 1.3° lower than from 1871–1891, there are reasons for thinking the former a little too low and the latter a little too high. The highest annual temperature for the whole series was 53° in 1846, and the conclusion is that "we are entirely safe in assuming that the temperature shows no change in the seasons as a whole. Whether spring is a little earlier now than formerly is a slightly different question, and there are some indications of this." This is in accord with the most accurate observations at many places in Europe, where for one hundred years no permanent changes in temperature, rainfall, etc., have been noted. Lake Michigan is never frozen over in the centre during the cold season, but during the winter of 1874–75 ice was cut sixteen inches thick two or three miles out on the lake. This, however, is a rare occurrence. The level of Lake Michigan has reached a stage (.16 foot) a little below the lowest average stage known, that of 1847, and under the influence of a southerly wind it has recently gone two feet below the 1847 stage. This steady fall is of serious import, and there is great difficulty at times in keeping up the water-supply for the city of Chicago. The level of the lake is falling at the rate of one-fourth to one-third of an inch per year. The first storm warning of the Signal Service was issued from Chicago, and bears the date

of November 8, 1870, and was abundantly justified. The city is liable to high winds, which have wrought great havoc, as, for example, the wind that wrecked some of the World's Fair buildings quite recently. These high winds, or "wind rushes," should be carefully distinguished from the tornado proper, which, so far as known, has visited Chicago but once.

Forest Influences. (*Bulletin No. 7, Forestry Division U. S. Department of Agriculture.*)—This publication of one hundred and ninety-seven pages comprises four papers and two appendices by Professors Fernow, Harrington, Cleveland Abbe, and Curtis. It is illustrated by sixty-three drawings, which show the relation of temperature to soil and vegetation, and the temperature of the air in the interior of forests, glades, and plains. The air strata above forest stations are found to be cooler and more moist, although only slightly so, than over field stations, and experience and measurements show that there is a greater tendency to condensation over wooded areas than over open fields. These cooler and relatively and absolutely more moist strata when carried away by air-currents must modify conditions near forests, and possibly increase in their neighborhood the tendency to the formation of dew and to other precipitation under certain conditions. Professor Fernow considers the question of appreciable forest influence upon precipitation as still unsolved, with some indications, however, of its existence under certain climatic conditions in the temperate zone, especially towards the end of winter and the beginning of spring. Professor Fernow cites an instance where a definite increase in forest over an area of twenty-five square miles was followed by a definite increase in rainfall beyond that of neighboring stations to the extent of twenty-two per cent. within six years, and a change from a deficiency to a considerable excess over the rainfall of these other stations.

It seems that the deciduous trees withhold more of the precipitation (three per cent.) through the entire year than do the evergreens, and that this additional percentage becomes nine in the leafy season.

REVIEW OF ITALIAN, SPANISH, AND PORTUGUESE MEDICINE.

IN CHARGE OF A. M. FERNANDEZ DE YBARRA, M.D.,
New York,
Corresponding Member of the Medico-Chirurgical Academy of Madrid, Spain, the Argentine Medical Circle of Buenos Ayres, South America, and the Society for Clinical Studies, of Havana, Cuba; Executive Assistant Secretary-General of the First Pan-American Medical Congress.

Human Milk during the Period of Menstruation. (*Gazetta medica di Torino*, Nos. 19 and 20, 1893.) By Dr. Albert Biagini.

From the study of seven clinical observations, Dr. Biagini found that during the menstrual period the fat and other elements of human milk

undergo a notable increase in quantity. For instance: fat, from forty-seven to sixty-four per cent. (Obs. I.); from forty-four to seventy per cent. (Obs. II.); from thirty-nine to fifty-four per cent. (Obs. III.), etc. The specific gravity also varied from 1033 to 1035 in one case, from 1039 to 1043 in another, from 1031 to 1034 in another, etc.

The indications for treatment are rather of a hygienic than of a therapeutic nature. It is necessary to modify the dietetic regimen of the mother or wet-nurse, as the case may be, and to regulate menstruation, or to give the child a few spoonfuls of water in order to dilute the milk suckled.

A Case of Hermaphrodism. (*Bollettino scientifico,* Pavia, vol. xv., No. 1, March, 1893, page 9.) By Dr. Gaspare Bergonzoli.

Individual of thirty-two years of age, born at Tunis of Italian parents, height one metre and thirty-six and a half centimetres, one metre and thirty-eight and a half centimetres from the tips of the fingers of one hand to those of the other when both arms were raised and extended at full length. The general appearance is that of a man; his voice is also that of an adult male. The hairs of the pubis continue up to the umbilicus; has thick beard; masculine-shaped pelvis. The external genital organs show a vulva with large labia majora separated on their upper extremity by the base of a well-formed penis six centimetres long, capable of reaching a length of nine centimetres when in the state of erection; glans penis well shaped, presenting at its inferior aspect a split or cleft which leads to a short blind canal; its prepuce is adherent to the labia minora; there is a median raphé on the under surface of the penis, leading to the meatus and presenting at its extremity Pozzi's frenulum. The vagina is narrow, and introducing the finger in it one touches the vaginal portion of the neck of the uterus. Menstruation has always been regular since its first appearance at eighteen years of age.

This individual has had sexual intercourse with both males and females, and two abortions, but has never fecundated any other woman. It is a case of gynandrism, with more of the female sex than the other already known and authenticated cases of the same kind.

Clinical Value of the Means to Ascertain the Existence of Dilatation of the Stomach. (*Revista de Medicina y cirugía prácticas,* Madrid, May 7 and 22, 1893.) By Dr. Nicolás Rodriguez Abaytúa.

The author, after calling attention to the difference between megastria and gastroectasis, carefully reviews the diagnostic means usually employed to discover the presence of dilatation of the stomach, such as inspection, palpation, partial and general succussion, percussion, insufflation, auscultation, direct mensuration, and gastric catheterization. The results obtained by palpation are very often of no value whatever, and, as a general rule, always doubtful. Dr. Abaytúa, therefore, prefers *amplexation,* which is a method deservingly disinterred by Drs. Charpentier and Trastour in 1890. (See

Revue générale de clinique et de thérapeutique, July, 1890.) Partial succussion, instead of serving to detect the splashing sound, the author thinks is of no use, because the well-known blowing sound of Bouchard can also be produced over the transverse colon. General succussion has a greater diagnostic importance, because the amphoric resonance induced by partial succussion does not resemble the splashing sound of the transverse colon, and, as this last noise cannot be obtained in that way, it is better to rely on general succussion. Percussion, which has been considered until lately as the best method to ascertain the extension and true position of the stomach, is to such a point unreliable that two clinicians practising percussion, one after the other, on the same subject, will many a time mark different outlines of the stomach. Insufflation by means of bicarbonate of sodium and tartaric acid, first carried into execution by Frerichs and Mannkopf, is not a very practical medium of diagnostic exploration. Auscultation does not give any indication of the existence of gastroectasis. Direct mensuration presents several sources of error, and, finally, gastric catheterization, which undoubtedly is the best means of exploration, is of no value unless practised after the stomach has disposed of its alimentary contents. The best time to make use of this exploratory diagnostic measure is in the morning before breakfast, either by the so-called "method of expression," or by suction with Fremont's aspirator. If the results are not conclusive, it will then be in order to wash the stomach with pure water or water made slightly alkaline, and to examine the returned liquid for small pieces of undigested food.

In a general way, the author recognizes as true cases of dilatation of the stomach those which regularly present, after the abstinence from food during the night, a few pieces of the aliment taken the day previous, or several days before. He goes on speaking of the chemical analysis of the gastric contents, and, based on this perquisition, Dr. Abaytúa makes several fine diagnostic distinctions.

Sulphate of Quinine in the Local Treatment of Ulcers. (*Giornale di farmacia, di chimica e di scienze affini*, Turin, May, 1893.) By Alfodi.

The author has noticed that infectious ulcers which seem to be rebellious to all kinds of treatment assume at once a healthy appearance and heal quicker when bathed with a solution of one per cent. of sulphate of quinine than when washed with a solution of corrosive sublimate or dusted with iodoform. Regarding simple ulcers, the healing action of the sulphate of quinine is still more rapid.

A New Process for increasing the Solubility of Salicylic Acid. (*Bollettino farmaceutico*, Rome and Milan, 1893, p. 3.) By Carcarro and Cesaris.

Salicylic acid has been recommended as a substitute for bichloride of mercury in surgical and gynæcological practice, on account of the highly

poisonous character of the mercurial salt; but as the very slight solubility of salicylic acid has been an obstacle to its employment for this purpose, the authors submit the following formula:

Boric acid	12 parts.
Salicylic acid	2 "
Water	1000 "

By heating this mixture a solution is rapidly obtained, which does not form any precipitate on cooling.

FORENSIC MEDICINE.

IN CHARGE OF LORENZO D. BULETTE,
Of the Philadelphia Bar.

A CASE OF ALLEGED MALPRACTICE IN EYE SURGERY.

THE views taken by courts of law upon questions of alleged malpractice should always be of interest to the medical profession. An interesting case[1] involving alleged malpractice in eye surgery has recently been decided in the Supreme Court of Iowa, the facts of which, as gathered from the evidence, are as follows: A physician who held himself out to the public as specially skilled in the treatment of diseases of the eye was called by another physician, in December, 1885, to examine the eye of a girl, a minor. At the time of the examination it was found that there was a perforating ulcer of the left cornea, with protrusion of the iris, a small part of the iris, about the size of a grain of wheat, being outside the cornea, protruding from the eye. The external parts of the eye were watery, irritable, and spongy. It appeared that the ulceration spoken of was the result of the infection of conjunctivitis and blennorrhœa. The physician did not see the eye of the patient again until the 17th of January, 1886. At this time there was greater protrusion in a marked degree, and very little sight in the eye. He then advised the parents of the girl that without an operation the eye would be absolutely lost, but that he could not tell with certainty whether or not the operation would result favorably. They consented to the operation, and it was performed the following day. The patient was placed upon a lounge, her hands held, and also her head during the latter part of the operation. Near the end of the operation, and while the final incision was being made, the patient flinched, and the knife made a cut

[1] Peck *vs.* Hutchinson (Iowa), 55 N. W. Rep. 511.

across the cornea in a diagonal direction. It was claimed by the girl that this cut destroyed the eye. In any event, either by reason of the diseased condition of the eye, or by reason of the operation and cut, the sight of the eye was entirely lost.

It was satisfactorily shown that the diseased condition of the eye, as it existed prior to the operation, was caused by infection of the iris, either gonorrhœal or blennorrhœal, transmitted from the vagina to the eye. The operation was successful so far as the excising the prolapsed portion of the iris was concerned, but sight was not restored. When the operation was about to be performed the physician made all preparations to put the patient under the influence of an anæsthetic,—namely, chloroform,—when the mother of the young girl forbade its use, whereupon he consulted with his colleague, the physician who had called him in in the first instance, as to the propriety of proceeding with the operation, using cocaine, which they did.

The unsuccessful result of the operation formed the basis of a suit by the girl against the physician for damages, alleging malpractice, claiming that he negligently resorted to a surgical operation instead of using proper medical treatment, and in performing said operation he had used an improper instrument,—namely, a large knife,—instead of an instrument adapted to such delicate work; also, that he negligently and unskilfully undertook a painful operation on said eye without first giving the proper drug to render the patient insensible to pain, etc.; and that but for the said acts the eye would have recovered. The physician in turn admitted having treated the patient's eye, but denied all the other allegations in her complaint, stating that the injury to the girl, if any, resulted from her contributory negligence in carelessly moving her head during the operation, and that her parents forbade the use of general anæsthetics while she was undergoing said operation.

At the trial of the case, among other questions submitted was the propriety of allowing the counsel for the girl to read to the jury from Wells's "Treatise on the Eye" what that writer says as to the operation of "iridectomy," showing that chloroform should always be administered, and not recognizing local anæsthetic treatment, or in fact mentioning it at all. The evidence showed conclusively that the work quoted from antedated the operation at least six years; that during these six years intervening between the publication of Wells's "Treatise on the Eye" and the date of the operation great changes had occurred in optical surgery; that during that time cocaine, a local anæsthetic, was discovered and came into use, thus superseding the use of general anæsthetics in such cases; consequently the surgeon could not be prejudiced by the authority quoted from, but, on the contrary, should be commended for adopting the more modern treatment, thus keeping up with the advancement in medical science.

Upon the question, "What is the general result of perforating ulcer of the cornea produced by gonorrhœal blennorrhœa?" the court held that the testimony of other physicians to the effect that such a disease generally

resulted in a loss of sight was competent and should be admitted as tending to show that the sight of the patient's eye in this case would have been lost by reason of the disease, regardless of any negligence in performing the operation, and that there could also be no objection to allowing the other physicians to testify that "operations performed for the disease of gonorrhœal blennorrhœa do not usually result in saving the sight of the eye." The ruling of the court in the admission of this testimony would seem to justify the physician's actions in taking the chance of saving the sight of the patient's eye by means of an operation.

The next point to be considered is the degree of skill which the law requires a physician should have before attempting an operation such as the one in question. The general impression undoubtedly is that a physician and surgeon holding himself out to the public as a specialist in a certain branch of his profession thereby professes a greater degree of skill in that specialty than could naturally be looked for in the general practitioner, but the courts are more discriminating, and a correct statement of the law would seem to be that "physicians and surgeons are required to exercise ordinary skill and diligence,—that is, the average of that possessed by the profession as a body, and not by the thoroughly educated alone, having regard to the improvements and advanced state of the profession at the time of the treatment."

The exact legal status of a physician in regard to compensation for services and the degreee of skill required under all circumstances may not be generally known to the medical profession, and a few words on that subject in connection with the present case may be acceptable to them. In cases of gratuitous treatment the courts have frequently been asked to charge the jury that, "When the services are rendered as a gratuity, gross negligence or wilful negligence or want of skill will alone create a liability on the part of the physician." Such instructions do not state the law correctly and are universally refused by the court. The great weight of authority is to the effect that the same degree of care and skill on the part of the physician or surgeon is required in gratuitous treatment as where the services are rendered under an express contract or understanding that such services shall be paid for. And where there is no express agreement in regard to the compensation, the law implies a promise to compensate, consequently the physician or surgeon is bound, in all cases, to exercise ordinary skill in rendering his services, and the term *ordinary skill*, as here used, means the average of that possessed by the profession as a body, and not by the thoroughly educated alone, having regard to the improvements and advanced state of the profession at the time of the treatment. And here it may be well to mention that it would seem the word "thoroughly," as used in this connection, should not be taken in its common or more usual acceptation, but rather as indicating the *highly* educated, for it is fair to assume, in the absence of absolute knowledge, that all physicians are thoroughly educated, but it is also quite as fair to assume, and in fact is

well known, that some members of the medical profession have acquired a degree of skill and proficiency in their art far in excess of the average, and it would hardly be justice to require such advanced knowledge and skill from the profession as a body.

THOMAS P. HOWELL.

BOOK REVIEWS.

SYSTEM OF DISEASES OF THE EAR, NOSE, AND THROAT. Edited by Charles H. Burnett, A.M., M.D., Emeritus Professor of Otology in the Philadelphia Polyclinic; Clinical Professor of Otology in the Woman's Medical College of Pennsylvania; Aural Surgeon to the Presbyterian Hospital, etc., Philadelphia, Pa. Volume II., copiously illustrated. Philadelphia: J. B. Lippincott Company.

The second volume of this exhaustive system is divided into two parts. Part II. deals with diseases of the nose and naso-pharynx, and is continued from the previous volume. In this division Morbid Growths and Deformities of the Nasal Cavities are considered by Carl Seiler, and the pathology, etiology, physiology, and differential diagnosis of these conditions are carefully detailed. Surgical procedures in deformities and neoplastic growths in the nose are described by William Chapman Jarvis, of New York. Francke H. Bosworth, also of New York, contributes an interesting article on hay fever. This will be generally considered the most practical addition to the system, and contains a number of valuable suggestions as to treatment. Neuroses of the nose and naso-pharynx are considered by Joseph A. White, of Virginia. George M. Gould describes the diseases of the eye dependent upon diseases of the nose, and reflex nasal diseases due to ocular maladies. L. Duncan Bulkeley writes on Skin Diseases of the Nose.

In the third part, which treats of the pharynx and larynx, the anatomy and physiology of these structures is described by Alexander W. MacCoy; Vocal Culture and Hygiene, by S. Hartwell Chapman, New Haven, Conn.; Acute Pharyngitis, by Max Thorner, of Cincinnati; Acute Tonsillitis, by C. E. Bean, of St. Paul, Minn.; Chronic Pharyngitis, by E. Fletcher Ingals, of Chicago; Acute Laryngitis, by Jacob D. Arnold, of San Francisco, Cal.; Croup, by William Carr Glasgow, of St. Louis, Mo.; and Diphtheria, by J. Lewis Smith, of New York. Charles B. Nancrede dwells on the surgical treatment of croup and diphtheria, in an able article. Lupus and leprous laryngitis are considered by Ramon de la Sota y Lastra. Chronic laryngitis, simple and traumatic, is considered by E. L. Shurly, of Detroit. John O. Roe contributes an interesting article on foreign bodies in the larynx and trachea and in the pharynx and œsophagus. Charles H. Knight deals with chronic diseases of the tonsils, and Rufus P. Lincoln with the pharynx and larynx in the exanthemata and other febrile affections. W. Peyre Porcher discusses neuroses of the larynx and of the pharynx, and dysphagia, while Lennox Browne writes on deformities and morbid growths in the pharynx and the larynx, and J. Solis Cohen on tuberculosis and syphilis of the larynx.

Some two hundred illustrations enrich the text, a number of which have been prepared from original drawings. The anatomy of the pharynx and larynx is especially well delineated. A number of the illustrations are colored, and all are executed with great care and thoroughness. The second volume of the system completes a valuable addition to medical literature, and will be gratefully received by the med-

ical profession at large. Much practical information as well as scientific research is embodied in the pages of this work, and the editor deserves great praise for the care which has been shown in the selection of material. In this day of systems it is interesting to welcome such a recognized authority on the subject with which it deals.

A Text-Book of Normal Histology; Including an Account of the Development of the Tissues and of the Organs. By George A. Piersol, M.D., Professor of Anatomy in the University of Pennsylvania. With 409 illustrations, of which 353 are from original drawings by the author. Philadelphia: J. B. Lippincott Company, 1893. Price, in calf, $4.00; cloth, $3.50.

Commencing with the normal histology of the cells and tissues, the writer takes up one after another of the tissues of the human body and details the essential points in the minute anatomy of each. Attention is called to the most important features by the use of larger and blacker type than that used for the rest of the text. The book is easy to read, and the subject is carefully handled throughout. The facile pen and pencil of the author have added much to the value of the text, more than three hundred and fifty of the illustrations having been taken from original drawings. The underlying morphological relations of the tissues have been thoroughly dealt with, and a brief account of the embryological processes concerned in the development of the tissues and organs has been added.

The author has wisely omitted any references to current literature except where the mention of the name of an author is desirable in order to enforce the statements which may have been made use of. This volume, therefore, is unencumbered by a vast bibliography, such as may be found accompanying a number of the foreign works on this subject. As it is eminently fitted to assist the student in the comprehension of the complex nature of the tissues of the human organism, Dr. Piersol's "Text-Book of Normal Histology" cannot fail to occupy a high place among the text-books employed in medical education.

Anatomy, Descriptive and Surgical. By Henry Gray, F.R.S., Lecturer on Anatomy at St. George's Hospital, London. New American, from the thirteenth enlarged and improved English edition. Edited by T. Pickering Pick, F.R.C.S., Examiner in Anatomy, Royal College of Surgeons of England. In one imperial octavo volume of 1100 pages, with 635 large engravings. Price, with illustrations in colors, cloth, $7.00; leather, $8.00. Price, with illustrations in black, cloth, $6.00; leather, $7.00. Philadelphia: Lea Brothers & Co., 1893.

The sterling merit of this book on anatomy and its usefulness to the student is sufficiently demonstrated by the fact that a thirteenth edition has been issued. No book deals with this complex subject so systematically, or presents the material in a way better fitted for the student to memorize. Ever since 1858, when the first edition of this work was published, a constant effort has been made to demonstrate the topographical relations of the various structures of the human anatomy in the clearest and most forcible way, and to this end a vast amount of time and skill has been brought to bear. This new edition has undergone thorough revision, and in some respects a rearrangement has been made. New illustrations have been added wherever it was considered that they would add value to the text. The colored plates, which are also found in other editions of this work, add much to its clearness, and assist materially in tracing out the blood and nerve supplies. So much new material has been added to this thirteenth edition that it has been found necessary to omit the pages on surgical and medical landmarks, which have made such interesting reading in the past. The student can, however, make up for their absence by carefully reading the paragraphs on surgical anatomy, which contain a careful consideration of the various regions of the body, and attention is directed to the most marked and char-

acteristic features of each region described. The reviewer can have nothing but words of praise for this work, which is the peer of all works on anatomy.

A Practical Treatise on Diseases of the Skin. For the use of Students and Practitioners. By J. Nevins Hyde, A.M., M.D., Professor of Dermatology and Venereal Diseases in Rush Medical College, Chicago. New (third) Edition. In one octavo volume of 802 pages, with 9 plates, three of which are colored, and 108 engravings. Cloth, $5; leather, $6. Philadelphia, Lea Brothers & Co., 1893.

This third edition of Dr. Hyde's work on diseases of the skin has been very thoroughly revised and enlarged by the addition of one hundred pages. There has been a corresponding increase in the number of illustrations and colored plates. Thirty-five new diseases are considered in the present edition, and lupus has been relegated to a position among the manifestations of tubercular infection. The classification of the American Dermatological Society has been followed as the groundwork for the consideration of the diseases treated. The author's vast experience in this class of cases adds to the value of the work, and insures the practical side of the treatment which he recommends. Wherever possible, the pathology of the condition under consideration has been carefully considered and illustrated by well-selected drawings. The work may be conscientiously recommended as a standard authority, and cannot fail to prove of use, not only to the specialist but to the general practitioner who may be fortunate enough to possess it.

The Principles and Practice of Surgery. By John Ashhurst, Jr., M.D., Barton Professor of Surgery and Clinical Surgery in the University of Pennsylvania, Surgeon to the Pennsylvania Hospital, Philadelphia. New (sixth) Edition, Enlarged and thoroughly Revised. In one octavo volume of 1161 pages, with 656 engravings and a colored plate. Cloth, $6.00; leather, $7.00. Philadelphia: Lea Brothers & Co., 1893.

This concise work treats in the most compact form compatible with clearness of the modern methods employed in the management of surgical affections. The principles upon which these directions are based are clearly stated, and definite reasons given for the course pursued. The popularity of this work is demonstrated by the fact that a sixth edition has become necessary, and the author has spared no pains to incorporate in it all the more recent discoveries and practical advances which have been made in surgical science.

A new chapter has been introduced on Surgical Bacteriology, by Charles B. Nancrede, Professor of Surgery in the University of Michigan. Gynæcological subjects have received revision at the hands of Professor B. C. Hirst; Diseases of the Eye, by Professor George E. de Schweinitz; and of the Ear, by Professor B. Alexander Randall.

The series of illustrations has been enriched by the addition of a number of original cuts, and of a colored plate illustrating bacteriological subjects. The work is thoroughly in touch with the times, and deals with each subject in a manner characteristic of the author. Nothing is left unsaid which would add to the practical usefulness of the book, and no unnecessary space is occupied by long-drawn-out theories and discussions for and against them.

Minor Surgery and Bandaging. By Henry R. Wharton, M.D., Demonstrator of Surgery in the University of Pennsylvania. In one 12mo volume of 529 pages, with 416 engravings, many being photographic. Cloth, $3. Philadelphia: Lea Brothers & Co., 1893.

In this new edition of Dr. Wharton's "Minor Surgery and Bandaging" the treatment of wounds by the aseptic and antiseptic methods has been thoroughly revised,

and a considerable amount of new material added, together with a number of new illustrations. The application of all the bandages used in surgery is carefully described and neatly illustrated by photographs taken from life. The ligation of arteries and the various methods of amputating limbs, etc., receive thorough treatment. In the operation for tracheotomy every step is carefully detailed, and nothing is left unsaid in the description of this difficult procedure. So throughout the book the author has said what he has to say in as few words as possible, and illustrated the text very copiously with excellent illustrations.

No book on minor surgery with which we are familiar appeals so strongly, not only to the sudent of medicine, on account of its eminently practical nature, but also to the general practitioner, on account of the excellent advice embodied in its pages.

THE CLINICAL USE OF PRISMS, AND THE DECENTERING OF LENSES. By Ernest E. Maddox, M.D. Second edition. Revised and enlarged. Bristol: John Wright & Co. London: Simpkin, Marshall, Hamilton, Kent & Co., Limited. Hirschfeld Bros., 82 High Holborn, 1893.

In this small volume, which stands alone in ophthalmic literature, are gathered all the fundamental and necessary facts concerning the properties of prisms and the principles involved in their use in practice. Both student and ophthalmologist will find this reliable treatise, on a subject too apt to be regarded as a *terra incognita*, a most useful addition to the literature on the ocular muscles.

The present edition is enlarged by the addition of a fuller study of convergence. The same simplicity and clearness are noted throughout the work, and one need be no mathematician to understand the important demonstrations of the properties and uses of prisms in ophthalmology. It is evidently the purpose of the author—and his object has been admirably accomplished—to rely upon demonstrations by diagrams rather than by wordy explanations.

It is impossible in a brief review to note the many excellent points of this book, but a careful study of its contents will convince the student that much of the anticipated difficulty in mastering the subject here so concisely handled will vanish with the perusal.

In no recent text-book on ophthalmology has the subject of muscular anomalies been satisfactorily treated, and this second edition of Maddox's work on prisms will fill a vacant space most satisfactorily.

A HAND-BOOK OF OPHTHALMIC SCIENCE AND PRACTICE. By Henry E. Juler, F.R.C.S., Ophthalmic Surgeon to St. Mary's Hospital; Surgeon to the Royal Westminster Ophthalmic Hospital; Consulting Ophthalmic Surgeon to the London Lock Hospital. Octavo volume of 562 pages, with 201 engravings, 17 colored plates, test-types, and color-blindness test. Cloth, $5.50; leather, $6.50. Second edition. Philadelphia: Lea Brothers & Co., 1893.

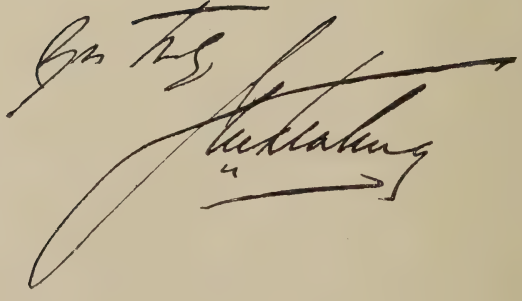
This beautifully-illustrated work presents the subject of ophthalmic science from essentially a clinical stand-point. The book is eminently practical; the illustrations are life-like in their resemblance to the conditions which they represent; and in the text we find the most advanced views that have proved their right to be enrolled as facts.

On page 332 we find the statement in regard to the "simple extraction" of cataract, "that the optical results *without iridectomy* are decidedly better should the operation be successful; but the liability to anterior synechiæ, prolapse of the iris, involvement of the iris in the cicatrix, with irido-cyclitis, is sufficient to raise doubts as to which is the better procedure," an opinion which voices the present views of the majority of careful surgeons.

The treatment of the subject of muscular anomalies leaves much to be desired.

Mention is not even made of heterophoria, while hyperphoria—that very important factor in many a patient's discomfort—is also ignored. In refraction, too, the work is behind the times. On page 469 the absurd statement is made that "after the age of thirty mydriatics are seldom necessary." The fear of fully correcting myopia is given another impulse by the author, who says, "In ordering glasses for myopes under fifteen years of age, give two dioptres less than full correction, . . . direct that these be worn constantly, while the additional two dioptres may be added in the form of eye-glasses, which can be placed in front of the spectacles when accurate distant vision is required."

Facing page 453 is an excellent lithograph showing the distorted fundus in astigmatism. In fact the character of the lithographic plates is far above the average. The great value of the work is the remarkable accuracy in its clinical descriptions and the soundness of the therapeutic measures advised, both surgical and medical. The paper, typography, and general make-up show the perfect work of the publishers.



In Memoriam.

JOHN M. KEATING, M.D., LL.D.

John M. Keating, M.D., LL.D., died of consumption, at Colorado Springs, Colorado, November 17, 1893.

Though a young man at the time of his death, his career was an unusual one. He gave to the world medical works recognized as authorities by the profession in every country.

Dr. Keating was born in Philadelphia in 1852, and graduated in medicine from the University of Pennsylvania in March, 1873, serving then as interne in the Philadelphia Hospital. In 1879 he accompanied General Grant and party in a tour of the world as physician to Ex-Secretary of the Navy Adolph E. Borie. During the trips through India, Burmah, the Malay Peninsula, Siam, and China Dr. Keating often had the medical responsibility of the entire party. In 1880 he published an interesting account of his trip, entitled "With General Grant in the East."

His active professional and literary life began in earnest after his return from this tour.

He was visiting physician and obstetrician at the Philadelphia Hospital; Lecturer on Diseases of Children at the University of Pennsylvania; assistant physician at the Children's Hospital; consulting physician at St. Joseph's Hospital and Orphan Asylum; physician in charge of the Children's Department at Howard Hospital; a Fellow of the College of Physicians; and a member of the Obstetric, County Medical, and Pathological Societies of Philadelphia and of the State Medical Society of Colorado.

He was for ten years medical director of the Penn Mutual Life Insurance Company, and president of the Association of Life Insurance

Medical Directors, and shortly before his death was elected president of the American Pediatric Society.

As a medical writer Dr. Keating placed himself in the front rank with his "Cyclopædia of the Diseases of Children." Other well-known works from his pen are "Maternity—Infancy—Childhood," "Management and Feeding of Infants," "Diseases of the Heart and Circulation," "New Pronouncing Dictionary of Medicine," "How to Examine for Life Insurance," "Mother and Child," and "A Mother's Guide." Several of these works were collaborated with other well-known specialists. Dr. Keating was also a co-editor of the well-known quarterly *International Clinics*, and he had charge of the "Review of Obstetrics and Gynæcology" in the INTERNATIONAL MEDICAL MAGAZINE, to which he was always a faithful contributor from the time of its conception. Just prior to his death he was revising proofs for a new work already on the press.

His charming manner and strong personality will always live in the minds of his friends, and his brilliant intellect will have an enduring monument in his literary work.

HENRY RUSSELL WRAY.

COLORADO SPRINGS, COLORADO.

INTERNATIONAL
MEDICAL MAGAZINE.

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ORIGINAL COMMUNICATIONS.

CLIMATE AS ONE ELEMENT OF CURE.

BY JOHN M. KEATING, M.D., LL.D.[1]

MANY articles on the climatic treatment of consumption have recently appeared, but, owing to their technical nature, they have been little understood by the layman. This subject, together with the sending of patients from the Atlantic seaboard to the climate best suiting their cases, is eminently worthy of the consideration given it throughout the world. The most important thing at the present day in the treatment of pulmonary disease is a thorough knowledge of what this disease consists of, and this should be shared by patient and doctor. In other words, the more clearly the public understands the causes of consumption, the more chance there is for a lessened mortality from this disease. There is no doubt whatever that tuberculosis, which is the most common form of consumption, and in fact the only one we will deal with, is caused in some way or other by the bacillus which was discovered by Koch. This bacillus may either be inherited, as some authorities now believe, or acquired through the medium of the expectoration of consumptives, inhaled by individuals or swallowed through the dust, and find at some time or other a fertile soil for its development.

Most individuals in the course of a lifetime must get a dose of this material, but a resistance, which is recognized as good health, will either

[1] This article was the last upon which Dr. Keating was engaged, as it occupied his attention only a few weeks before his death, and was to have been used as the commencement of a work on climatology, a subject in which he was most deeply interested.—H. R. W.

cause it to be thrown off or make it dormant, to become active only should the individual run down. Therefore, the public should understand that the maintenance of health, on the part of the individual, is the greatest preventer of consumption, and that cleanliness and the hygiene of private houses and public places are the most important means to prevent the spread of this infection. As to-day we are ignorant of any remedial measure which will effectually eradicate the bacillus with its poisonous productions, we are thrown entirely for the treatment of our consumptives upon measures which are directed towards the establishment of health and its maintenance.

Clinicians have divided the treatment of pulmonary phthisis into home and climatic, both of these being simply additions to the most important of all, the proper nutrition of the human body. To send a patient away from the comforts of home, even though that home be in an unsuitable climate, to the most salubrious spot on earth, and there deprive him of proper food and the means of financial support, is a fallacy which those who live in a health-resort realize only too well. Climate of itself is only one element, but when it can increase the vigor of the individual, in enabling him or her to live in the open air and cultivate an appetite for plenty of nourishing food, it becomes one of the most valued of therapeutic measures. Therefore, it is evident that not only the disease should regulate the advice of a physician in exiling his patient, but likewise the physical maintenance which is dependent on so many varied individual conditions.

Consumption is a disease which is fostered by dampness, both of the air and soil, as statistics all the world over show, and this dampness is usually associated with lack of sunshine and great variability of climate. The large cities of the seaboard naturally possess these conditions to a very marked degree, and as man, undoubtedly, was healthier in his nomadic condition, the nearer we approach an out-of-door life, which will give sunshine, fresh air, and dryness, the nearer we approach perfect health. Unfortunately, the personal conditions of each individual, such as the social elements which enter into the calculation, the financial matters and those which make him more or less dependent on mental resources, together with the tension of a high civilization, are well calculated to make the physician halt before passing sentence of exile. In fact, the physician deserves more credit than the average layman is willing to give.

One of the most delicate subjects of discussion in this connection is the wide-spread circulation of health-resort advertising literature. Naturally a physician is out of the advertising line and believes a good wine needs no bush. Unfortunately, there are a large number of hopeless cases who, realizing their desperate condition, will grasp at any straw for improvement, and, after using all the quack remedies available, purchase a railroad-ticket with their last penny, and find themselves stranded without visible means of support at some well-advertised resort, to die among strangers and to be buried by popular subscription. A dose of climate should be like a dose of medi-

cine, prescribed intelligently after due consideration of the case in all its details, and these details include all the personal considerations before mentioned,—the financial, mental, and social conditions of the patient. There is no one particular climate nor one particular resort which is suitable for every case, but there are certain points where the proper combination of climatic hygienic surroundings, suitable accommodations, and mental relaxation have produced marvellous results, arresting disease and prolonging life, which before seemed irrevocably doomed.

Medical men should feel grateful to the many eminent climatologists throughout the world who have at last succeeded in impressing upon the public, that the study of the value of climate is no haphazard theory, but the outgrowth of careful scientific investigation. It is not necessary that patients from America should be sent to foreign lands in search of these climatic conditions. The public, even including the profession, do not fully realize what enormous resources we have on this continent in the perfection of climates. We have every climate and almost every mineral spring which one would need in the treatment of any disease, and for consumption, particularly, we have the great advantage of possessing places where individuals can live all the year round. For one to thoroughly secure all the advantages of a climate, one must become a resident and not a mere sojourner. This, unfortunately, is not sufficiently understood, as the average patient believes that in a few months he can regain health and go back to his old surroundings with the disease cured beyond possibility of its return. This is the great objection to foreign resorts, and the more the public is impressed with this fact the easier it will be for doctors to persuade patients to reside in that portion of this country best suited to their condition. In a statement of this character it is impossible to give an outline of the various divisions of climate which are at the command of the physician in arriving at his selection.

Fresh air and out-of-door life being essentials, other matters have to be taken into consideration in regard to the choice of locality. Thus, we all know the results which have been achieved in places like the Adirondacks, Georgia, the Great Dry Belt of the Rocky Mountains, and the wonderfully equable climate of Southern California. The most important considerations next to the individual ones already spoken of, are not only the suitability of the climate but the medium by which the individual can take advantage of the places which are theoretically suited to his case, and this is a very important point.

It is well enough to say to a patient, "Go to Colorado, to New Mexico, to Southern California, to Arizona," but should he not be told specifically, after a thorough understanding of the case, to what objective point he should go to find all the advantages which would enable him to benefit by a residence at that particular point? To send an active business man, who has been accustomed to a busy commercial life, surrounded by congenial friends and home comforts, to an isolated ranch seventy-five miles from a

railroad station, no matter how salubrious the climate, and have him live on ham and pressed corn-beef, deprived of all social intercourse except what the cowboy can furnish, is enough of itself, when the novelty has worn off, to drive him to desperation and annul any beneficial influence the climate might have. This applies not only to the man, but is daily manifested in pitiable cases where delicate women have been sent from home to contend with the distressing combination of sickness, poverty, and loneliness. Climatic treatment needs in addition the advantages found in sanitaria, and were one obliged to make a choice it would be preferable to choose the well-equipped sanitarium based on modern principles, in a less advantageous climate, than to seek in climate alone a means of cure. This is why the home treatment is assuming such proportions in the discussion of this subject.

A COMPARISON OF THE WINTER HEALTH-RESORTS IN THE ALPS WITH SOME PLACES IN THE ROCKY MOUNTAINS OF COLORADO.

BY CARL RUEDI, M.D.,

Denver, Colorado.

When I chose this subject to lay before you, I little expected to meet with such difficulties in getting the necessary material together in due time so as to work it well, and to present you a condensed statement of the individual meteorological facts. I am almost sorry to speak to you to-day on this subject, as some of the reports from Switzerland which I wished to use have not arrived yet, and so I can hardly do full justice to the subject. It is a question of great importance to the whole of the United States, because the dreadful disease which is *par excellence* treated by climates has a strong footing all over our country, and if America is able to offer the same or even better advantages to the invalids, it will not be necessary to send them abroad and to put an ocean between them and their kin.

In writing the title of this paper I used the word "comparison," but we must remember that we can only compare similar things, and just here the difficulty commences: the climate of a place consists of so many factors that we can hardly expect to find two places congruent; they will be similar in some respects, but different in others, and this I found particularly true of the two places I know best, Denver and Davos. Both these places are at exactly the same altitude, but this is really the only point in which they resemble each other. Moreover, not even the meteorological observations can be used individually,—viz., mean barometrical pressure, mean temperature, mean humidity; and so I have taken into consideration, together with the meteorological observations, the general character of the country, the

fauna, and the flora. To give you an example of this necessity, I will describe my experience in October, 1891, in Hygiene, which had been recommended to me as a winter health-resort. It lies about forty miles north of Denver and has an altitude of five thousand feet, so it is two hundred feet lower than Denver or Davos. When I left the house to look over the grounds, I first stepped into the orchard; the ripe apples and pears were tumbling off the trees; then the landlord took me through a chestnut grove, where the spiky fruits were ready to add their flavor to the dessert-table; and at the further end of the garden, close to the border of the field, I saw the lazy watermelons and the sugar-melons sunning their backs and only waiting to be plucked. The tomatoes were growing everywhere, and all the vegetables from the cabbage to the peppers. Can we compare this place with Davos, though nearly of the same elevation, if we remember that in Davos no cherry-tree, or fruit-tree, can bring forth its savory product, and that even potatoes and barley attain a very doubtful success? This led me to look out for places in Colorado which have the same character, fauna, and flora as the principal health-resorts for winter in Europe, Davos and St. Moritz, and I was fully convinced that I would find something similar in the range of the Rocky Mountains, and now I do not hesitate to say that the eastern slope of the American "backbone" offers as good climatic conditions as the European resorts, or even better.

Remember the situation of Colorado for a minute: two thousand miles from the Atlantic and one thousand miles from the Pacific, and no great sheet of water intervening except the lakes, which are regularly frozen over in winter time. Colorado receives its moisture almost exclusively from the Pacific Ocean, and a look at the map shows distinctly under what conditions the moisture can reach Colorado. As long as the wind from the southwest, west, or northwest has its usual velocity, the Sierras and the western slope of the Rocky Mountains will condense the moisture, and it is only when the wind blows so hard that it travels thirty to sixty miles an hour that Colorado gets the benefit of a real down-pour, and it is always the case that Colorado has for a day or two strong and boisterous winds before a heavy rainfall or snow-storm sets in. At the same time we must remember that between the Sierras and the main branch of the Rocky Mountains the vast plains of Utah lie, which will, as soon as the velocity of the wind slackens, condense a great deal of the moisture in the air. Excuse this digression, but it will explain some of the facts which I wish to put before you later on.

For my observations during this winter I selected such places in Colorado as resembled Davos in regard to character, fauna, and flora, but in order to do this I had to seek much higher altitudes, and only at an elevation of seven or eight thousand feet did I find what I wanted. A difference of two thousand feet between Colorado and Switzerland is required to put invalids under the same conditions. With Davos I wish to compare Estes Park, which is six thousand nine hundred and forty feet high, and about

seventy miles north of Denver at the foot of Long's Peak. It is a plateau quite surrounded by gigantic mountains, and is about ten miles long and six miles wide, with no end of little side valleys with lovely trout streams. In order to make a comparison with a European place the "Lenzer Haide" might be mentioned, between Parpan and Lenz in the Canton des Grisons, as it is almost a perfect counterpiece to Estes Park, but only on a smaller scale. Craggy precipices form the border of the picture, surmounted by peaks mostly covered with snow, pine-trees scattered about on the slopes, sometimes isolated, then again in groups, and lower down in regular pine-woods all over the park; the banks of the Thomson are fringed with willows, birch, and mountain-ash. Oats, barley, and potatoes are grown in sheltered patches, and occasionally the farmers have good crops, but sometimes they have to use them as feeding material, because the fruit has not ripened. Of wild flowers there is a great variety, and they show similarity to those of Davos. In the early spring you will find anemones in abundance, crocuses, lilies of the valley, and violets. Later on you have no end of meadow-flowers, and also the cacti in several species show their lovely blossoms to the observing eye. Of ferns there are many varieties, and also of saxifraga and gentiana. The flora has been described by Mr. Chapin, of Boston. The animals show a similarity to those of Davos, too: the mountain-rabbit, the fox, the coyote (not known in Europe), now and again a deer and a bear; the mountain-sheep, under the protection of the law, still can be seen, but I am afraid only by privileged eyes, as I was not able to detect any of them, not even with the telescope.

The birds which winter in Estes Park are the crow, the magpie, and several specimens of woodpeckers; during the summer, however, we find anything from the gray humming-bird to the mountain-eagle, and I am happy to say that the meadow-lark and finches and other singing-birds are the constant companions of the solitary pedestrian. The purity of the air is so absolute that all objects although some miles distant show their details to perfection, and for an amateur in art or photography lovely studies are available. Gem Lake, Horse-Shoe Valley, Moraine, and South Park are places near by, that can only be compared with the finist idyllic scenery that Switzerland and the Tyrol can offer. By these remarks I have tried to show that these two places resemble each other except in altitude. Estes Park is one thousand feet higher than Davos. Does higher altitude in itself materially affect the human body under normal or abnormal conditions? is the question which forces itself at once to the foreground, and what are the effects of high altitude or lessened atmospheric pressure? This question has been so often ventilated already by the most eminent climatologists that one hardly needs to dwell upon it, and only facts *en masse* can ultimately decide this question; but I do wish to remind you that Quito and Santa Fé de Bogota are very useful health-resorts at an altitude of twelve thousand feet, and particularly useful for consumptive patients. I think that the diminished atmospheric pressure used in the cabinet gives us the proper explanation.

In using the cabinet we put the patient for some hours into an altitude of five or seven to ten thousand feet, according to the barometrical pressure you wish to use, but we do not give him the other climatic factors of high altitude, and therefore the results are widely different. In a former publication of mine I stated, that the circulation and the nervous system are particularly influenced by high altitude, and this must necessarily be kept in mind; if the circulation is too poor to supply the organism with the necessary quantity of oxygen, or if the nervous system is so excited that insomnia sets in, then the patient had better go to a warm, equable sea-shore, but for patients with a fair amount of strength and resistance, the diminished atmospheric pressure has certainly only a beneficial effect, and the healing properties of the mountain air have been regarded by the medical profession ever since the time of Celsus as the most powerful remedy for consumption. Only some weeks ago Dr. C. T. Williams, in his Lumleian lectures, showed with his own statistics the vast superiority of the mountain-air treatment in phthisis to any other treatment yet inaugurated. If we recall to our mind the statements of Pasteur and Tyndall about the frequency of micro-organisms in the air, that with the elevation the number of germs in the air gets less, high altitude certainly can only be beneficial. We are not yet at the end of the bacteriological period, and can expect shortly to hear that fungi as well as the bacillus tuberculosis Kochii have a great deal to do with the destruction of lung tissue, for a friend of mine, Mr. Cappin Jones, has published already an article describing a new fungus constantly present in cases of softening of lung tissue, and which in pure cultures shows a decided tendency to affect the lungs.

That in different latitudes on our planet the character of the climate changes I do not need to mention, but it is worth mentioning that with each degree of latitude the difference is approximately three hundred and sixty-five feet in altitude to give the country the same character and the same flora; so we have in Greenland the mountain climate at sea level, and in Brazil at fourteen thousand feet.

To make the necessary observations, I asked two gentlemen friends of mine to retire to the wilderness for the winter, Mr. Evers to Sunnyside in Boulder County, at an elevation of eight thousand feet, and Mr. Killby to Estes Park, Larimer County, six thousand nine hundred and forty feet, and I have to thank them both for the unerring faithfulness they showed in taking the observations for me. The results of these observations I put against the official reports of the Swiss meteorological stations, but I am bound to say that St. Moritz has not answered my request and has not sent in the tables up to date. The observations of the Sentis I have added to my list, because it is the highest point in Switzerland where official observations have been taken, and it gives us a fair comparison with the highest places in Colorado that are inhabited. The Sentis is an isolated peak nine thousand five hundred feet high in the Canton Appenzell, near the eastern border of Switzerland; the observatory stands two thousand feet above timber-line.

The close study of these reports at hand led me to the following conclusions, which I shall try to prove with the aid of some condensed tables as extracted from the whole material—not to tire you too much with details—of which I may afterwards make use.

I. The first point I wish to dwell upon is the barometrical pressure, and this shows in Colorado decidedly less variations. One can go through the tables of Denver, Estes Park, and Sunnyside for week after week with hardly any alteration; but if once a depression sets in, the difference of the readings can be nearly as marked as in Switzerland, but the averages of the different months show always less variation, and both my observers agreed in this point. If I give you the monthly averages for Estes Park for the months of December, 1892, and January, February, and March, 1893, you will see that the monthly range is almost *nil:* December, 1892, 22.06; January, 1893, 22.11; February, 22.01; March, 22.01.

II. Humidity is the second and one of the most striking points of difference we have in these two countries, and I wish to give you in a short table the means of the relative humidity per month as observed last winter with the hygrometer.

	Denver.	Estes Park.	Sunnyside.	Davos.	Sentis.
October	53		61	77	85
November	45	40	62	79	76
December	60	47	66	81	77
January	39	38	59	86	71
February	54	49	70	82	79
March	52	41	67		62

The maxima of the readings in Davos and on the Sentis show every month one hundred; the maxima in Colorado never reached saturation during this period. The reasons for this difference we have to seek in the amount of precipitation, and if I recall to your mind that in Colorado hardly anything grows unless the soil is under artificial irrigation, I only need to give you the items of the precipitation during winter, as during summer the power of evaporation is by far greater than the rainfall. Denver has a very minute record of the precipitation for the last ten years, and out of this I state that the month of

November	on an	average	of ten years	had	0.577 inch of precipitation.
December	"	"	0.870	"	"
January	"	"	0.706	"	"
February	"	"	0.563	"	"
March	"	"	1.080	"	"

The months November, December, January, February, and March show for the ten years 1882–1892 a total precipitation of 37.96 inches, or 0.759 inch for each month. A comparison between the two Swiss observations and the two Colorado stations for the last winter shows the difference most decided.

Denver had in	28	days of	precipitation in the	6	months	October to April 6.79″
Estes Park "	19	"	"	6	"	" " 6.64″
Davos "	53	"	"	5	"	October to March 11.24″
Sentis "	103	"	"	6	"	October to April 30.52″

By this table we see not only that the absolute precipitation is considerably greater in the Swiss mountains, but also that the number of days on which precipitation occurs is much higher, and this leads me to the third point of difference,—

III. The sunshine, which I think is of such vital importance that some tables ought to be given. For some other purposes I put the hours of sunshine together that Denver and Davos had during the months of November and December, 1891, and January and February, 1892, and I reproduce them here in an abbreviated form.

Davos had in	November,	1891,	on the average per day	2.97	hours	
Denver	"	"	"	"	7.20	"
Davos	"	December	"	"	2.99	"
Denver	"	"	"	"	6.30	"
Davos	"	January,	1892,	"	2.70	"
Denver	"	"	"	"	6.60	"
Davos	"	February	"	"	2.77	"
Denver	"	"	"	"	7.10	"

sunshine. The observations of winter 1892–93 are very similar, and I give you a short table together with the possible sunshine for each place and for each month on the average.

Davos had	with a possible sunshine of	7.74	hours	in	Oct. '92,	on the average	3.20	hrs.
Denver	"	11.20	"		"	"	8.52	"
Davos	"	6.26	"		Nov. '92,	"	3.62	"
Denver	"	10.	"		"	"	7.63	"
Davos	"	5.32	"		Dec. '92,	"	3.36	"
Denver	"	9.48	"		"	"	6.39	"
Davos	"	5.90	"		Jan. '93,	"	3.21	"
Denver	"	9.77	"		"	"	8.50	"
Davos	"	6.65	"		Feb. '93,	"	2.95	"
Denver	"	10.07	"		"	"	8.21	"

If we consider these tables we must confess that there is a great difference, and, instead of speaking of the sunny South, I think it would be more appropriate to speak of the lofty sunny parks in the Rockies. It is not only that the European sky produces more precipitation and gives less sunshine, the cloudiness which is proverbial for England extends over the Channel, too, and the really fine and cloudless days are fewer in number in Switzerland than in Colorado, but still the difference in this respect is not so great, for it stands at four to five. I wish to remind you that the heliographic observations are taken in the middle of the business town in Denver; and J. J. Gulligan, the observer to whom I owe many thanks for his assistance in procuring material, tells me that, in consequence of smoke

which fills the air, he loses in the morning and in the evening a good deal of time, as the sun-rays are not then strong enough to make an impression on the instrument, although he still sees the sun in the sky. In the mountains themselves this disadvantage will not be felt. I am fully aware, however, that the mountains themselves will take away some of the sunshine. Let us compare the possible sunshine of Estes Park and Davos for the few months the observations have been taken.

	Davos.	Estes Park.
December	165 hours.	264 hours.
January	182 "	268 "
February	186 "	267 "
March	not received.	325 "

By this we see that the possible sunshine is far greater in Estes Park than in Davos, and that it surpasses St. Moritz, so that if we take in consideration that the clear days in Switzerland are fewer than in Colorado, we can understand the great difference in this respect.

IV. The fourth point I wish to speak of is the temperature, but this, of course, cannot be materially different, as I compare places with the same fauna and flora, which involves more or less sameness of temperature; but one fact struck me very much in Estes Park which I will mention briefly. The thermometer gives readings which are almost ridiculously even; for weeks you read 20° to 40° F. at 7 A.M., 40° to 45° at 1 P.M., 25° to 30° at 9 P.M. The only variations take place when sharp continental winds set in, and then at once the temperature falls very low, stays low until the snowfall has set in, to rise again to the usual point after three days. During this winter there were two depressions every month, which lasted exactly three days each time, but Mr. Killby writes to me that "there were only three days between the 15th of November and the 1st of April that invalids would have been obliged to stay in their houses." He did not mark a trace of rain during his stay at Estes Park, while in Davos on the 15th of December, 1892, there was a decided rainfall.

V. A point of difference which is very striking to the new-comer to Colorado is the increased electricity. This has been mentioned in various former publications, and a number of details have been recorded; I only wish to speak comparatively and give you my own experience in this question. As long as I lived in Davos I never received an electrical shock in shaking hands with a patient, while in Denver it is almost an everyday occurrence, and frequently when a little child runs quickly through a room to greet the doctor quite a perceptible shock, accompanied with the usual click of uniting antagonistic electricity, is felt and heard. It is so common that the children don't notice it. Whether the electricity in the air is highly increased or not I cannot say, because the observations in this direction are so scanty that no deductions can be drawn from them, and to my great regret I must say that even at the present time no observatory makes any systematic observations. I think that the reason of this greater quantity of electricity in Colorado

can be explained in one of two ways: either the electric current in the soil is materially greater, or a current of electricity is more easily produced by friction in consequence of greater dryness of the air. The first is a hypothesis, the second is a fact, but I could quite easily understand that an electric centre lies in the north of the Rocky Mountains, as magnetic centres are known to exist in the north of America. At the same time we must remember that this mountain-chain contains great quantities of metals which are constantly in mutual contact, and which might increase the intensity of the current. Why have we not yet tried to make use of the electric current in the earth for technical purposes, a power which probably surpasses everything hitherto known? This increased electricity, whether produced by the electric current in the soil or by friction, can in some cases be beneficial, in others obnoxious; but it stands to reason that all those cases that want an exciting stimulus to their nervous system could be benefited by it, while those that want a sedative influence had better remain in lower altitudes. I cannot understand why electricity has not been studied more climatologically, because the difficulties can be overcome, and there is no doubt that this factor is of equal importance with temperature and humidity. I only remind you of this one observation on Mount Loury near Paris, where the bacteriologists found that their cultures of germs and fungi did not grow during the time that the air was positively electric, but they grew well while the air was negatively electric.

VI. The sixth and last point of difference I have to speak of is the wind. Colorado enjoys the name of being a windy place, and so it is in many quarters. But until now Denver and Colorado Springs have been the only places regularly visited by invalids, and both of these lie, properly speaking, outside of the mountain range, Denver more so than Colorado Springs. Wherever the mountains go abruptly over into plains the wind is a necessary consequence, because the different altitude produces of itself a great difference in the temperature, and the local currents are to the greatest extent dependent on the temperature of the strata of the air; but this is no criterion for the real mountain places in the centre of the Rocky Mountains themselves. In these parks at an elevation of seven thousand feet the air does not get overheated, and if it should do so during the summer months it will certainly not do it during winter, and it is marvellous how still the atmosphere during winter is. As Mr. Killby writes me from Estes Park, "There is no relaxing or moist wind corresponding to the Föhn which prevails in Davos-Plaz; the prevailing winds are from the west and southwest, but not, as a rule, such as to prevent invalids from exercising in the open air; though at the time of sunset care must be taken not to be out while the temperature is changing, the evenings can still be enjoyed and be profitable to the progress in health." Davos has decidedly less wind during the winter season than any other place used as a health-resort, but there is no question that it frequently suffers from want of wind, because the smoke which is produced by the hotels, bakeries, and pensions hovers over the valley to

such an extent that, when standing above this sea of smoke, one feels sure of being able to find something better than this. This feeling has been prevalent for many years past, and the doctors tried to put a stop to this contamination, but still the place is increasing and the coal made cheaper by the introduction of a railroad, and nothing has been done to prevent the smoke from ruining the place. Therefore, and only therefore, St. Moritz and Arosa have such good prospects. I know quite well that some physicians say that smoke is no contra-indication to phthisis; but, if we look at the reports of the graveyards, where it is clearly shown that even the marble, the granite, and the limestone monuments are quickly destroyed by the sulphuric acid contained in the air from the use of coal as fuel, we can understand that a weak lung will feel it too. Fresh pure air, as God gives it to us free from all contamination, is the first requisite for the successful treatment of consumption.

In giving you a comparison between Swiss health-resorts and Colorado climates I intentionally abstained from speaking of any superiority; every physician to whom I address this essay will be able to find out for himself where to send his patients; and, to come to a conclusion, I would like to say that Colorado and probably also New Mexico and Arizona have in their mountains natural advantages and climatic conditions which equal or surpass the best European health-resorts of this character. But until now the best places in these States resembling Davos and St. Moritz have not been made use of. Denver resembles very closely the lake of Zurich, with the exception of the altitude and the dryness of the air; Colorado Springs resembles the valley of the Rhine at Ragatz and Mayenfeld, but is always dry and has also higher altitude; and, for the real mountain health-resorts nearly equal to Davos and St. Moritz, I would propose Estes Park, at an elevation of six thousand nine hundred and forty feet. There we stand just at the upper border of the trees that bear leaves, and find the same character of the country, the same fauna, and the same flora as in Davos; and, if anybody wishes to have a good holiday in air as pure as one can find it, this is the place.

In these parks one has the opportunity of choosing building-sites: one corner of the valley is sheltered, the other is exposed, while on the plains everything is exposed. A careful study of the situations will give one guidance where to build, particularly the observation of wind and sunshine. Colorado is not yet what it ought to be, "The Sanatorium of the United States," but I fully believe that it has the stuff in itself gradually to merit this name. If a system of health-resorts is once established at different altitudes to suit each individual case, I do not think Colorado could be beaten: Denver or surroundings as starting-point, at an elevation of five thousand two hundred feet; Colorado Springs, at six thousand feet, as second station; Estes Park, at seven thousand feet, as mountain health-resort; and one place not yet taken in consideration, at an elevation of eight thousand feet, for people that have to prove that their lungs have been cured, and for

others that are sent into the mountains to expand their chest and for mountaineering. I think that this would be the ideal of a health-resort; as soon as the doctor sees the patient fit for a higher altitude, one step forward is made, and so gradually, according to their strength, the altitude can be increased; on the other hand, the doctor can send a patient from higher altitudes lower down without changing anything materially except the altitude. This would be a health-resort not known before, but it is only a hope. Let us hope that in this direction the development of Colorado will proceed as it does in all others, and I am convinced the number of the saved lives endangered by the common enemy tuberculosis will be greatly enlarged, particularly if the doctors of the United States get accustomed to send patients for climatic treatment in the earlier stages.

ANOMALY OF TENSION OF THE DRUM-HEAD.

BY B. M. BEHRENS, M.D.,

Chicago.

Anomaly of tension of the drum-head is represented by two different conditions pathologically, namely, too much tension, or hypertony, and too little, hypotony, or atony. Clinically they are both alike, so far as the hearing power is altered to an extent proportionate to the loss of swinging ability of the drum-head. The contact of this and the malleus is so intimate and the co-operation so fine, that the least little disproportion arising reacts upon the hearing. The principal factors in preserving the minute co-operation are the drum-head and the tensor tympani muscle, and a mechanical or pathological change of one or both will affect the hearing to a corresponding extent. As these changes seldom or never occur solitary, but are either contemporary or sequelæ to affections of the Eustachian tube or the middle ear, it is evident that a complication of symptoms must arise, which makes it a difficult task to find out to what extent the alteration of the hearing is to be ascribed to this disproportion or to the complications. As long as the substance of the drum-head itself remains intact, and the mobility of the hearing bones is unimpaired, there can be no material alteration of the hearing power, no matter whether the tension is increased or decreased, so long as the co-ordination of the drum-head and the tensor tympani muscle is undisturbed. So we observe very often a plane drum-head with a seemingly elongated manubrium, very little prominence of the short process, and a short broad pyramidal light; in other words, signs of an outward pressed membrane, and yet the hearing exceedingly fine. On the other side we observe frequently a very concave drum-head, a prominent short process, a retracted manubrium, a small, thin pyramidal light, all signs of an in-

ward pressed membrane, and yet the hearing as acute as can be desired. The explanation of this can only be that the co-operation of the drum-head and the tensor tympani remains as intimate as under entirely normal conditions. A subtile examination will reveal the fact that the hearing has suffered some deterioration in consequence of the drum-head and hearing bones swinging in larger or smaller amplitudes, which escape our observation, but this has no practical value, and meddling with such cases on our part is not required. It is only when the above-mentioned disproportion of the drum-head to the tensor tympani muscle takes place that the hearing power deteriorates and calls for our interference. With the exception of suppuration in the middle ear, that may lead to a destruction of the tendon of the tensor tympani and atrophy of this consequent upon atrophic catarrh, we very seldom observe any alteration in this, which is not secondary to other applications in its immediate vicinity. The most frequent causation we find in the drum-head itself, either as cicatrization after a purulent otitis media, chronic hypertrophic or atrophic catarrh, calcareous deposits, adhesions in the middle ear, etc.; in short, all afflictions in the ear, which lead to a degeneration of the fibro-elastic tissue itself, or, so far as the adhesions are concerned, tend to counteract a proper action of the tensor tympani muscle. We fail with our diagnostic means to appreciate to what an extent a lowered hearing is due to these pathological changes in the degenerated drum-head and how much to deeply-seated complications that involve the mobility of the ossicles themselves. With our therapeutic armamentarium of a medical and mechanical nature we fail to influence material changes and recover lost tension, unless these are of a passing nature. In cases where we fail we are frequently inclined to make up our diagnosis and prognosis according to this fact, that we consider such a condition one of "stapes ankylosis." It marks one of the greatest advances in the otology of late times that internal ear diseases and stapes ankylosis have been separated diagnostically, certainly with very little benefit to mankind, but nevertheless with marked advance to science. The next advance is to deprive stapes ankylosis of part of its odiousness by separating it from afflictions of an apparently similar nature, which are wholly or partly reparable, what stapes ankylosis in its advanced stage never is. A test which theoretically is much advocated, but in practice very little or never resorted to, is the opening of the drum-head for the sake of getting an idea about the condition of the middle ear; in short, whether the ossicles or the stapes are mobile or not. It is a common observation in our daily practice that an opening in the drum-head, as we find it after a suppuration in the middle ear, does not necessarily result in a deterioration of the hearing power. Consequently is such a proceeding, as an artificial opening, as a rule, harmless and undertaken with proper precautions obligatory for the sake of making our diagnosis more exact and settling this question, whether a limited mobility of the hearing bones is attributable to these or something outside of them? Is it by these means established that the fault is outside of them, either in the form of adhesions or degeneration of the

drum-head itself? then the prognosis is encouraging, although our therapeutic agencies for the present are defective. But an advance in diagnosis gives promise for an advance in therapeutics above those ordinary means which are only a wasting of time and patience in many cases of this nature. With the exception of the proposition of Professor Politzer to make scarifications in the drum-head for atony, I have never seen mentioned any adequate treatment for this condition. But this procedure is very slow and of little benefit. When he says that he has had good results in some instances, it very likely either means a small percentage, or that he very seldom has employed it. His theoretical reasoning justifying this procedure is correct, in so far that the little adhesive inflammation in the tissue surrounding the incisions should increase the consistency of the drum-head, thereby enabling it to better communicate the sound vibrations to the ossicles.

I have in some instances seen results from this procedure, but they have not been so telling in quantity nor so striking in quality as to stimulate me to adopt this measure, and that it will ever be employed as a common therapeutical agent is out of the question. What is said about scarifications holds good also for other surgical measures, as, for instance, cutting of the anterior ligament, the posterior fold, and the tendon of the tensor tympani. Ordinarily they are regarded more as curiosities, mentioned now and then, than worthy of imitation, for the very reason that their indication is uncertain, and the beneficial results either *nil* or temporary. While two per cent. of successful results are recorded, ninety-eight per cent. of failures are never mentioned. It is therefore not too much scepticism on my part when I dare to predict that there is no future in store for these procedures. They cannot redeem the lost tension of the drum-head, because they are too much localized and can never benefit the drum-head as a whole. For the same reason our small surgical means for dividing adhesions in the middle ear are unsatisfactory, as we certainly may succeed in separating them, but are not able to prevent their healing again and leave our patients worse off than before.

The only conclusion to which these remarks lead me is, that a drum-head so much troubled with unfavorable conditions for doing its work properly should be sacrificed entirely. Its secondary importance of protecting the tympanic cavity is of very little concern, compared with that of the hearing, and wherever it acts as an impediment there is no doubt in my mind that it should go. But we must feel tolerably sure that we do not give up more than we can get back; in other words, if for one reason or another the removal of the drum-head is not likely to benefit the hearing, it ought not to be undertaken. This is a rule which may smack of too much conservatism, but such a course is preferable to an uncalled-for mutilation. As hinted at previously, there is only one reliable test or guide to a probable diagnosis, and that is the artificial incision in the drum-head for admitting the sound vibrations to the stapes. If it be ascertained in this way that the hearing improves, then there ought not to be any hesitation in

removing the whole drum-head. Whatever surgical work is done in the ear must of course be done under proper aseptic precautions, and the pain minimized as much as possible. A simple incision only does not require the use of anæsthetics, which would make the patient unfit for a subsequent examination, but as the pain is rather severe, even if it is of short duration, I usually make a hypodermic injection of a two-per-cent. morphine solution over the mastoid process, which is much more effective in taking the sting of pain away than any amount of cocaine applied inside or outside on the drum-head. If no improvement follows, or, on the contrary, an impairment has taken place, a little cotton plug dusted with iodoform, applied on the incised part, is sufficient to bring about a closure in a short time with no inconvenience to the patient or further impairment to the hearing. In case of an improvement, which disappears by the incision healing up again, the removal of the whole drum-head is resorted to. Dr. Sexton has proposed to remove with the drum-head also the malleus and incus, or only loosen the connection between the incus and stapes, the last part of the proceeding for the benefit of the stapes to vibrate independent of its contact with the incus. Without criticising or subscribing to this last part, I must from experience declare myself in favor of the first part, viz., the removal of the malleus with the drum-head, the principal aim being to check the formation of a new drum-head; and there is no other way of checking it, so far as I know; and even this radical measure is not always radical enough to check it, what depends to a certain extent on the local vitality and the patient's condition and age. But it is more sure to produce a permanent opening in the drum-head than any other procedure known up to this time, and therefore it ought to be employed until we discover something better. It is a well-established fact that cutting out part of or the whole drum-head or destroying it entirely with cauteries for establishing a permanent opening has not met with success. A very few cases of success have been reported (I, myself, reported several years ago one case, of which I was very proud at that time, for the reason that an opening was established, which has remained open for twelve years, and by which the hearing was improved from two feet for the loud voice to twelve feet for the common voice), but all failures have not been reported; nor has all the work on the part of the otologist or the perseverance on the part of the patients been recorded to tell a tale of anxiety and misery spent in vain on this obstreperous part of the human anatomy, called the drum-head. When we desire to lay the tympanic cavity open permanently, it is of little concern whether the malleus is present or not, so its sacrifice seems to me a small matter. That its presence is of no use needs no explanation, and when its removal is likely to insure the permanency of the improved hearing, more so than any other less heroic procedure, the justification of it ought not to be questioned.

The operation itself is made under narcosis after the preliminary cleansing precautions have been observed. The hypodermic morphine injection before the operation is, of course, superfluous. An incision is made along

the rim of the drum-head and close to the bony ring; with another instrument, especially constructed for that purpose, the tendon of the tensor tympani is divided, after which it is easy with the Jarvis wire-loop to extract the malleus. A little iodoform is then applied on the bony ring, and the outer part of the meatus plugged with borated cotton. This ought not to be put so far in as to come in contact with the bony ring, as it is likely not only to cause pain, but also to further the reproduction of a new drum-head. The little discharge which usually sets in after the operation must not be interfered with at all, as has been recommended by Dr. Sexton. If the complete formation of a new drum-head occurs, the total removal of it will as a rule suffice for establishing a permanent opening.

Of twenty operations I have performed for various middle-ear afflictions, those for an anomaly of tension have given the most gratifying results. For the disappointment of not getting brilliant achievements we are many times repaid by our patients' gratitude, when we only can do so much for them that they can throw away the speaking-tube. It is self-evident that a degenerated drum-head lies as a dead weight on the ossicles and acts more as an impediment for admitting the sound vibrations to them than as a swinging membrane, and no matter to what extent deep-seated pathological changes have jeopardized the hearing, a good perception for the tuning-fork and degeneration of the drum-head give good promises for this operation, which are unobtainable in any other way whatever.

A CASE OF MUSCULAR DYSTROPHY.

BY JAMES TAYLOR, M.A., M.D. EDIN., M.R.C.P. LONDON,

Senior Assistant Physician to the National Hospital for the Paralyzed and Epileptic, Queen Square, London.

I AM indebted to Dr. Hughlings Jackson for the opportunity of studying the patient a description of whose condition follows, and for permission to publish the result of our combined observations. For the careful notes of the case I have to thank Mr. Stoddart, clinical clerk, and Dr. Guy Wood, Resident Medical Officer at the Hospital, under whose supervision they were taken. The case seemed to me to offer some points of interest, especially in view of the fact that particular attention has recently been directed to the disease of which it is an example by the monograph of Erb on muscular dystrophy.[1]

J. D., aged twenty, a male, was admitted to the National Hospital for the Paralyzed and Epileptic, Queen Square, February 3, 1893. He com-

[1] Dystrophia muscularis progressiva. W. Erb, Leipsic, 1891.

plained of weakness of the back, wasting of the arms, difficulty in walking, and pains in his head, chiefly about the eyes.

His health until June, 1887, had been quite good. He then began to suffer from aching in his back, and this was the only symptom until June, 1889. At this time he came to England from the United States. He then noticed that his arms were wasting. This went on rapidly until the beginning of 1890, when they were as much wasted as they are now. About June of that year he noticed that his walking was affected. This gradually became worse until about the middle of 1891, when it was quite as bad as it is now. Since June, 1889, he has been under treatment, and for the seven months prior to his admission into the Queen Square Hospital he was under Dr. Jackson's care at the London Hospital. Lately he has suffered from aching about the neck, both anteriorly and posteriorly, and more recently about the jaws, especially after walking. He has also had some difficulty attending the act of swallowing, but there has been no regurgitation of fluids.

His previous health has been excellent. He has had no serious illness, and there is no history of excess of any kind. His father is living and healthy; his mother died ten years ago of phthisis. He has four brothers and three sisters, all of whom are healthy. One brother was killed in an accident. No trace of any similar condition is present in any others of the family.

As regards his present condition he is a fairly well-nourished man of spare build. He is pale, but his mucous membranes do not show him to be anæmic. He lies comfortably in bed in any position. He has a small nose and deeply set eyes, with a broad, overhanging forehead and prominent mouth and chin. His temperature is normal; his pulse is 66 per minute and his respirations 36.

His mental condition and memory are as good as ever. He has a tendency to be drowsy, and sleeps at times during the day as well as at night. He suffers from occasional pain which he says is in the "sockets of his eyes." He becomes giddy when he walks for any length of time, and also when the pain at the back of his eyes is present. He has never had any fits. The special senses show no abnormality except that he is slightly myopic. The media are clear and the disks and fundi normal. His pupils are equal and react normally to light and during accommodation, and his ocular movements are good. His temporals, masseters, and pterygoids all act well, and there is no enlargement of them. In an effort to raise the eyebrows the left frontalis contracts well. On the right side the skin becomes wrinkled close to the margin of the hairy scalp, but below this it remains smooth. He cannot completely close his eyes. When he tries to do so a narrow space intervenes between the two lids (see Fig. 1). He cannot dilate his nostrils. In an effort to show the upper teeth the angles of the mouth are slightly drawn up, but the middle part is not moved at all. He cannot turn down the corners of his mouth, but he is able to

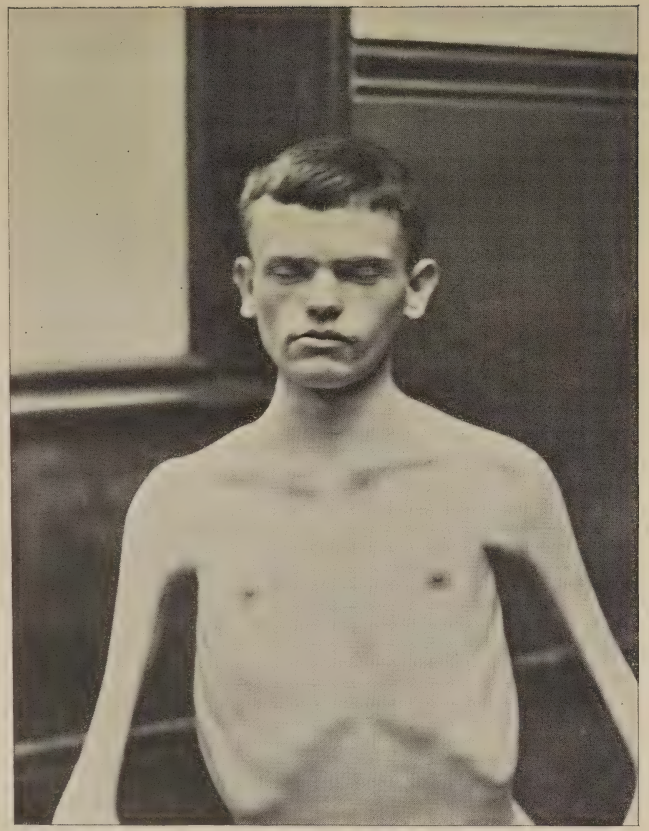

FIG. 1.—Incomplete closure of the eyelids in a case of muscular dystrophy.

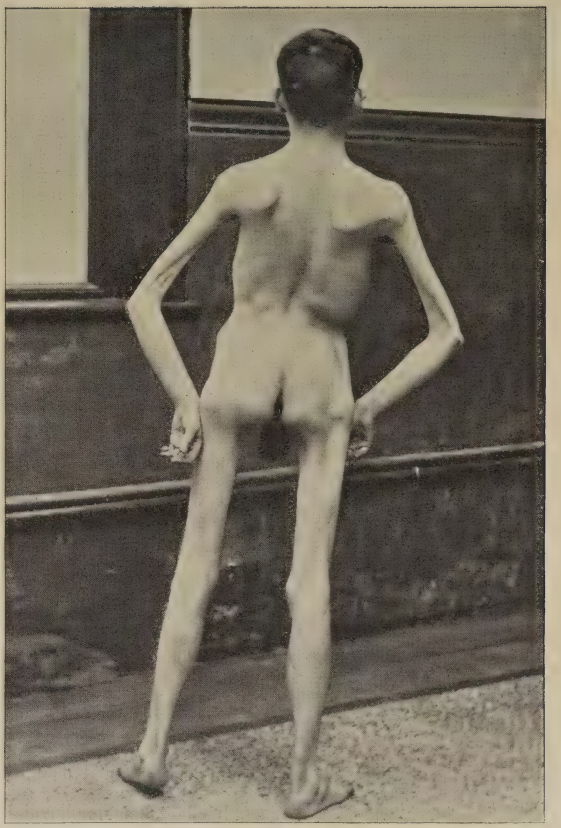

FIG. 2.—Posterior view of a decided case of muscular dystrophy.

move his ears. His tongue is well protruded in the middle line. It is fissured at the edges and looks thinner than normal. There is no tremor. During deep inspiration and phonation there is a slight dimpling of the right side of the palate and the right crico-thyroid does not seem to act quite so well as the left. There is no sign of laryngeal obstruction, and the movements of the vocal cords are normal.

Position.—In standing with his feet together he is a little unsteady; he is more stable with them apart. As he stands his head is slightly retracted and the trunk curved with the concavity backward. On dropping a weighted line by his side it is noticed that the sternal end of the clavicle, the apex of the curve in the lumbar region, and the heels are in the same vertical line. A line dropped from the most prominent point of the occiput falls about eight inches behind his heels. The scapulæ are "winged." The chest is flat, the lower margin rendered prominent by the curvation, and the abdomen retracted apparently by contraction of the recti abdominis in maintaining the erect posture. As he stands up the arms hang vertically and the forearms are flexed (Fig. 2). He walks with a wide basis of support, the feet being about twenty-four inches apart, and the inner part of the sole is thus brought into close contact with the ground. He rolls very much from side to side as he walks.

SIZE AND CONSISTENCE OF THE MUSCLES.

Arms.—No abnormality is noticed in the intrinsic muscles of the hands. The forearms are perhaps slightly larger than natural; the pronato-flexor group is of normal consistence, the supinato-extensor group feels hard and fibroid.

The wasting of the muscles on the flexor and extensor surface is extreme. The triceps feels hard and fibroid. The deltoid is much wasted on both sides, and so is the latissimus dorsi. The pectoralis major is nearly absent, but more can be made out on the left than on the right side. No pectoralis minor can be made out on either side. The teres major seems to be normal. Neither trapezius nor serratus magnus can be made out. The sacro-lumbalis seems to be smaller on the right side than on the left. The scapulæ differ in position on the two sides, as is shown in Fig. 2, which also makes evident the lateral curvature with its convexity to the right side.

Feet.—As he lies in bed his feet fall into a position of eversion especially well marked on the right side. The anterior tibial muscles appear smaller than natural; the gastrocnemii are about normal. There is general wasting of the thighs, more in the adductors than in the other muscles. The gluteal muscles seem to be almost entirely gone, so that the contour of the bones is plainly visible.

	Right.	Left.
Circumference of the middle of the thigh.....	29 cm.	27 cm.
" " calf.....	27.7 "	27.5 "

Movements.—He can raise himself in bed and flex his trunk, without the assistance of his hands.

Arms.—Grasp, R. 27, L. 22.

Right. He can flex his fingers completely. He cannot extend his fingers completely except the little one; the others are progressively weaker. Abduction and adduction are good and all the thumb movements can be carried out. Flexion and extension at the wrist are good; adduction is weak and abduction almost absent. At the elbow, flexion can be carried out completely, but he can only extend his arms with very feeble power to an angle of about 120°, on account of the contracture in the biceps. The shoulder movements are also impaired, especially flexion. When the scapula is fixed the arm can be raised above the horizontal. He shrugs the shoulder entirely by a respiratory movement, and it rises to exactly the same height as when he is asked to take a deep breath. No muscles stand out above the shoulder in attempting this movement. On the left side the conditions are similar; on this side also there is contracture of the biceps, preventing full extension at the elbow. The levator anguli scapulæ acts on this side, and this accounts for the difference in position of the scapulæ on the two sides.

In the lower limbs all the movements are weak, especially dorsi-flexion of the foot.

There seems to be a certain amount of hyperæsthesia over nearly all the body.

Reflexes.—Plantar, abdominal, epigastric, gluteal, and scapular are all unusually active.

The knee-jerk is absent, as are also the elbow- and wrist-jerks. The organic reflexes are unaffected and the viscera show no sign of disease.

Electrical Reactions.—In the face the orbicularis palpebrarum, the frontalis, corrugator supercilii in each side react normally; in the levator anguli oris, the orbicularis oris, the zygomaticus, and the depressores anguli oris no reaction is obtained with either current.

There is a reaction to faradism in all the muscles of the right upper limb except the triceps and deltoid. These, as well as all the others, react to galvanism, and K C C > A C C. In the left upper limb the condition is exactly the same, except that in the triceps galvanic as well as faradic irritability seems to be abolished.

In the shoulder muscles on the right side no reaction to faradism or galvanism is found in the trapezius, the serratus magnus, or the latissimus dorsi. The levator anguli scapulæ reacts to galvanism (K C C > A C C), but not to faradism; all the others react to faradism and also to galvanism, K C C being greater than A C C.

On the left side, however, the levator anguli scapulæ does react to a faradic current and to galvanism (K C C > A C C). No reaction to either current is obtained in the trapezius, the serratus magnus, or the latissimus dorsi. No faradic reaction is obtained in the rhomboids on this side, but

the galvanic of normal quality is present. In all the others there is a reaction to faradism and also to galvanism (K C C > A C C).

In the right leg no reaction to either current is obtained in the extensors of the toes or in the calf muscles. In the glutei and adductors of the thigh a galvanic reaction is obtained (K C C > A C C), but no faradic. The condition in the left lower limb is exactly the same.

From this description it will be evident that this is a case of muscular atrophy, and when it is noted that it commenced at the early age of fourteen, that the intrinsic muscles of the hand are unaffected, and that there is not and has never been any stiffness or fibrillary contraction, it will be recognized that the disease is not of spinal origin. The further condition described, as regards especially the mode of progression, the distribution of the atrophy and the presence in some muscles of a peculiar fibroid hardness will make it evident that we have here to deal with a case of myopathy,—*i.e.*, a case in which the recognizable morbid condition is not in the central nervous system or in the peripheral nerves, but in the muscles themselves. It is also to be noted that the face is affected, the inability to completely close the eyes being the result of weakness of the orbicularis palpebrarum, while it is also evident that the frontalis and the muscles about the mouth are weakened.

In the title to this paper I have called this a case of muscular dystrophy. It might have been described, and to some the name might appear more suitable, as a case of the facio-scapulo-humeral type of idiopathic muscular atrophy, or as a case of the Landouzy-Déjérine variety of this disease. But a short sketch of the development of our knowledge of these muscular affections will show that it is desirable to rid ourselves to some extent of the accumulated mass of names which has grown up around this disease, and to recognize, if it can be done, the essential unity of what have hitherto been considered as distinct diseases, or at least distinct varieties of disease.

The so-called pseudo-hypertrophic variety of muscular affections has been recognized under this name ever since its graphic description by Duchenne.[1] The features of this were muscular weakness and associated enlargement of the muscles, sometimes a few, sometimes many. Duchenne also described in the same work [2] another form of paralysis which he supposed to be similar in its etiology to the progressive muscular atrophy of adults, and which he named "atrophie musculaire progressive de l'enfance." This was characterized by wasting of the muscles of the face as well as of the limbs, and also by its tendency to run in a family. Leyden's attempt[3] to separate the hereditary form of muscular atrophy into a distinct variety need only be referred to. The most noteworthy addition to our knowledge of these cases was the lecture by Gowers[4] on pseudo-hypertrophic paralysis.

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[1] Electrisation localisée, 3d ed., p. 595.

[2] Ibid., p. 518.

[3] Klinik der Rück-Krank., ii. p. 525.

[4] Lancet, 1879.

In this a full description of the disease was given, numerous clinical observations and interesting facts were detailed, and all that was known regarding its pathological anatomy was clearly set out. In this lecture Gowers clearly recognized that hypertrophy, or seeming hypertrophy, and atrophy may be combined in different proportions, and that there are cases which connect the two extreme conditions,—in some enlargement of all the muscles, in others wasting in all. In this way we get, as it were, a glimpse of the group which Erb[1] afterwards clearly outlined under the name of the juvenile form of progressive muscular atrophy. This was characterized by its occurrence in young people under twenty, and by the fact that there was enlargement of some muscles, with wasting especially of those about the shoulder. From a consideration of the characters and histories of these cases, Erb concluded that the three varieties—the "juvenile" form, the hereditary form of Leyden, and pseudo-hypertrophic paralysis—were but examples of one condition, for which he proposed the name "dystrophia muscularis progressiva."

Soon after this Landouzy and Déjérine published[2] an exhaustive paper on what they called "Myopathie atrophique." It dealt with observations of an exceedingly interesting group, the essential characteristics of which were wide-spread muscular atrophy commencing in the face, and without hypertrophy. These cases were really identical with those described by Duchenne as "atrophie musculaire progressive de l'enfance," but the later observers completed the description by the discovery from post-mortem examination that it did not depend upon nor was it associated with change in the spinal cord, but that it was a muscular affection without detectable nervous lesions. They were led to regard their cases as a distinct and separate variety of myopathy, relying upon the commencement in the face and the absence of hypertrophy, and they refused to recognize the essential identity of these cases with those of Erb, in spite of the fact that in one of their quoted cases the face was not affected, and considerable enlargement of the calves, if it was not present at the time, had been a few years before.

The latest and most important contribution to the literature of this disease is again the work of Erb.[3] In this he submits to examination numerous clinical records of cases of the different kinds, and makes it clear —by the observation of cases of different types among members of the same family, by the description of cases which form distinct connecting links between the different varieties, and finally by observation of the histological conditions in the affected muscles—that all the four varieties to which we have referred (pseudo-hypertrophic paralysis, the hereditary form of Leyden, the juvenile form of Erb, and the Landouzy-Déjérine or facio-scapulo-humeral type,—the "atrophie musculaire progressive de l'enfance" of

[1] Deutsch. Archiv f. Klin. Med., Bd. xxxiv. S. 467.

[2] Revue de Médecine, 1885.

[3] Dystrophia muscularis progressiva. W. Erb, Leipsic, 1891.

Duchenne) are essentially the same disease. He goes, it may be said further, and proposes a fresh classification of these cases, but the consideration of that scarcely comes within the sphere of such a paper as this.

IS PYOSALPINX SUSCEPTIBLE OF SPONTANEOUS CURE?

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THIS is a question which many a gynæcologist has repeatedly asked himself. Martin has reported more than three hundred cases in which recovery is said to have taken place without operation. Lusk states that he has seen so many recover as to have reached the conclusion that if the operation is postponed it may not be necessary to do it at all. Murray, Polk, and others have reported series of cases in which drainage was followed, apparently, by cure. Such testimony is distressing to those with whom the *furor operativus* is ardent, and it is also misleading, for from it no general deduction can be drawn, unless it be that some men are prone to operate too hastily, which all the world knows, therefore, it is an unimportant deduction. We are yet far, as it seems to me, from that precision in diagnosis which enables one to say unerringly that pyosalpinx is or is not present. Fortunately, it is seldom necessary that we should say unerringly that pyosalpinx is or is not present; that is usually a minor consideration, for, given the presence of a tumor in the pelvis, which it is usually possible to determine, and the experience of severe or serious symptoms referable with extreme probability to the said tumor, our judgment as to its species may properly be deferred until we can see and handle it. We can guess at its variety in advance if we choose, and that is a privilege of which advantage is usually taken. Pyosalpinx is a condition which so seldom occurs uncomplicated, it is so often associated with ovarian abscess, or with pelvic abscess or inflammation consequential to disease of the uterus or its appendages, that any method of treatment which offers a cure by any means short of those which are radical and surgical must include within its limits only a small proportion of the existing cases of the disease. If this is true, it must also be true, *a fortiori*, concerning spontaneous recovery from the disease. My own experience has led to the belief that the statements which in any way convey the impression that the disease is one which, if left alone and allowed to run its course, will result in a spontaneous cure, or is one which is readily curable by electricity, drainage, etc., do not accord with the facts. I admit that exceptions are not very infrequent, and of these I shall speak subsequently. We must not forget that we may sometimes be deceived by the cessation of symptoms, and hug the delusion that quiescence means cure.

Naturally the question arises, then, What constitutes a cure of the disease pyosalpinx? Certainly, if the diseased organ is removed, the pelvic exudate which is often found after operation is absorbed, and the endometritis which existed prior to the operation disappears, the disease, with its antecedents and consequences, is eradicated; but to say that it is eradicated under any other conditions is to take a good many things for granted. Before the question of cure or curability is further discussed, it would be well to consider what is implied in the term pyosalpinx. The disease has been so extensively investigated, from almost every stand-point, that there need be no uncertainty in the statements which are to be made. A better term than pyosalpinx is suppurative salpingitis. The term pyosalpinx has crept into common use, and, like many other incomplete or indefinite medical terms, cannot readily be displaced.

Suppurative salpingitis, then, is an acute or chronic inflammatory process of the Fallopian tube, with which the formation of pus is incidental. The quantity may be small, but the question of the disappearance of the pus is important, for it bears seriously upon the question at issue, namely, the question concerning the spontaneous curability of the disease. The various forms of the disease are well known and have been many times described. Sänger and others have described puerperal, gonorrhœal, tubercular, syphilitic, and actinomycotic varieties. There is also a variety which is distinctly traumatic; also one which Bland Sutton and others have spoken of as arising in connection with myoma, adenoma, and carcinoma of the uterus, in which the new growth may also involve the tube as well as the uterus. Actinomycotic salpingitis is exceedingly rare,—in fact, I know of but one recorded case, that of Zemann, which is quoted by Bland Sutton ("Surgical Diseases of the Ovaries and Fallopian Tubes." Lea, 1892, p. 278). The post-mortem examination showed that this was a true case of suppurative salpingitis, and actinomycotic nodules were found in the tubal walls.

Syphilitic salpingitis is also rare,—not suppurative salpingitis as a complication of syphilis, which is common enough, but gummatous formations within the structure of the tubes. Bouchard and Lépine, also quoted by Bland Sutton, have reported such a case.

Tubercular salpingitis does not necessarily mean tubercular peritonitis in which the distribution of tubercle extends to the peritoneum covering the tubes, although Sutton thinks tubercular peritonitis usually implies a precedent tubercular salpingitis, the tubercular material having escaped through the abdominal end of the tube and infected the peritoneum. Tubercular salpingitis presents the common characteristics of suppurative salpingitis, excepting, of course, that there is an accumulation of caseous material instead of pus within the tube, and that the presence of *bacilli tuberculosis* is demonstrable; or the accumulation within the tube may not suggest anything different from an ordinary case of suppurative salpingitis. The mucous membrane of the tube, again according to Sutton, is destroyed by infiltration with inflammatory products or by ulceration.

In an ordinary experience one does not meet with either of the three varieties of suppurative salpingitis just mentioned, but the gonorrhœal and puerperal varieties are common enough. The gonorrhœal variety is, I believe, the most frequent of all. It is preceded inevitably by gonorrhœa affecting the uterus, repeated reinfection being possible, while in many cases the virus deposited at a single infection is reproduced indefinitely. Valuable as the bacteriological investigations in this field have been, they are confusing and inharmonious, and compel us to rely largely upon clinical phenomena. One group of bacteriologists, of whom Bumm is representative, asserts that the gonococcus, the infectious germ of gonorrhœa, confines its activity to surfaces,—that is, it does not penetrate tissues, and becomes encapsulated when it reaches the peritoneum, and, therefore, harmless. Another group, led by Wertheim, affirms that the gonococcus penetrates tissues, and that the disease gonorrhœa is not superficial in its action. Both of these writers speak with authority. Which is the clinician to believe?

It seems to be a fact that youth, with its rapid tissue changes and active processes, is the favorable period for the development of infectious disease. We see it illustrated in the great preponderance of the exanthematous diseases during the period of childhood. I believe that the law holds good for gonorrhœa as well, and, consequently, for gonorrhœal salpingitis. I have never known of a case of gonorrhœal salpingitis contracted subsequent to the menopause; and if a woman has vitality sufficient to withstand the ravages of the disease until middle life, with its atrophic changes, is reached, she may outgrow it. Bland Sutton narrates such a case in a prostitute who died at the age of forty-four. She had followed a career of vice for many years, had suffered a long time with disease of the uterus and appendages, and *post-mortem* examination revealed a shrivelled and atrophied uterus, and tubes reduced to mere strings of connective tissue. But I believe that cases of endurance like this are extremely rare. It may therefore be safe to state that the period during which gonorrhœal salpingitis is acquired is prior to the thirty-fifth year of life. There are two classes of women in whom the great majority of cases of this disease are found,—prostitutes and newly-wedded women whose husbands are sufferers from gonorrhœa at the time of marriage. The frequency of the disease in prostitutes was observed by Mercier as early as 1848, in connection with a large number of autopsies which he made upon women of that class. Their manner of life is such as to predispose them to this affection: their irregular habits, constant and indiscriminate intercourse, alcohol drinking, uncleanliness, all favor the development of a disease which is intensely infectious.

The other class, which is also a very large one, includes women who prior to marriage may have been entirely unconscious of any disease of the sexual organs. The husband may not be suffering with acute gonorrhœa at the time of marriage; his attack may date back months or even years, and he may even be quite unconscious that any trace of the disease remains; but such is its insidiousness and persistency that he becomes unwittingly the

source of infection to his wife, and in a few weeks or months she enters upon the characteristic experience of which suppurative salpingitis is one of the sequels. It was the great merit of Nöggerath to discover and announce these facts, which were received with almost universal incredulity at first, but have since been verified by many observers.

The puerperal variety of suppurative salpingitis is associated with a history of gestation either extending to term or incomplete. In by far the greater number of cases there is a history of abortion, which is regarded by so many women as a trivial affair, and such cases too often prove incurable except by the most radical procedures. It is the supposed insignificance of abortions which leads so many women to have them criminally produced, and to be grossly careless about themselves after they have been produced, from whatever cause or motive. Especially is this true with women of the working classes, whose household duties often forbid that consideration for their comfort and well-being on such occasions which those who are in more easy circumstances could consider if they would. In these cases there is usually sepsis in connection with retained products of conception, inflammation of the endometrium is excited, the process extends to the tube or tubes, and serious results may follow. The same series of events may occur after labor at term when the injury to the tissues has been severe, or the proper care during the puerperium has been wanting. Salpingitis which is of puerperal origin, like that which is gonorrhœal, may be of all grades of intensity and virulence, though the former variety in the average of cases offers a less hopeless prospect of cure.

Closely akin to the puerperal variety of suppurative salpingitis is the traumatic, though there are probably few cases in which the lesions of the childbed alone—that is, unsupported by sepsis—cause this condition. The number of cases of traumatic salpingitis is probably large, and the traumatisms may be of varied character,—such as the action of powerful caustics applied to the endometrium, the unskilful or violent instrumental treatment of the uterus and vagina, the improper use of pessaries, etc. While there has been sweeping censoriousness on the part of certain gynæcologists regarding the effect of treatment of the womb by manipulations and drugs, it is doubtless true that mischief is occasionally done by such practices; but this branch of gynæcology is not unique or exceptional in this regard.

The final variety of this disease to be described has received little consideration at the hands of most writers, but is, nevertheless, of great importance. Bland Sutton states that probably ten per cent. of the cases of carcinoma uteri are affected also with salpingitis, and this estimate appears to me a low one. Certain it is that women who are affected with myoma, adenoma, or carcinoma of the uterus or tubes, are constantly susceptible, from the presence of these new growths, to influences by which inflammation is easily excited, and as a matter of fact inflammation of this character frequently occurs. In all these varieties of salpingitis there is one symptom, pain, which is almost uniformly present. In the majority of cases

the extension of the disease to the peritoneum is suspected, and often verified by operation or autopsy. Probably the extension is usually direct from the mucous membrane of the tube, but the peritoneum may also be infected by the exudation of pus through the abdominal end of the tube, or through its wall. The sequence of events when this extension has taken place is a varied but very familiar one. There is plastic matter, of all degrees as to quantity and density, union of the tube to the ovary, abscesses in the latter organ, encapsulation of exuded pus around the tube and ovary, adhesion of these organs to the surrounding abdominal viscera, and the development of a tumor varying in size and relations with the varying conditions. There may be rupture of the purulent collection into the peritoneal cavity with fatal consequence, but I doubt whether such a result is as common as is generally believed on account of the tolerance which the peritoneum manifests for virulent material, and the readiness with which such material is absorbed or encapsulated. Certainly the number of women who die suddenly from rupture of an abscess in the peritoneal cavity is insignificant compared with the number of those who drag out a weary existence as the result of the pain and the poison of the disease. A most important fact, which has already been alluded to, is the impossibility of exact diagnosis as to the condition of affairs within the peritoneal cavity in very many cases, except by actual inspection or manipulation. A discharge of pus from the uterus by no means signifies necessarily a suppurative salpingitis. A diagnosis based upon such premises and followed by relief of the symptoms has, doubtless, led to not a few reports of cures of suppurative salpingitis, evidence as to the actual existence of the disease being entirely inconclusive. The course which the disease may take, with its accompanying phenomena, suggests the following classification:

1. A class in which the symptoms are mild, the resisting power of the individual good, and the infectious elements not numerous or intensely virulent (Okintchitz has shown that the prognosis in the septic diseases depends directly upon the number of infectious germs). The condition is frequently described and referred to as one of acute catarrhal inflammation, and such a description is a fairly good one. Cases in this class are seldom of gonorrhœal origin. They are frequently due to traumatism, from instruments, caustic drugs, severe childbirth, and from the irritating presence of new growths in the uterus or the tubes themselves. It is thought that many cases of hydrosalpinx are of this character, the pus having undergone transformation. The tumor in this class of cases is usually small and may disappear entirely, leaving no trace of disturbance behind, the inflammation subsiding as the same variety of inflammation in mucous membranes elsewhere subsides. It is this form of purulent salpingitis in which spontaneous cure occurs, perhaps before there is a chance to operate; it is also this form in which drainage and depletion by means of the intra-uterine tampon yield their best results, because there are no peritoneal adhesions, the tubes are not dislocated, and the mechanical conditions are more favorable to an outflow of the tubal contents than in any other form of tubal tumor.

2. In the second class of cases the conditions are more complicated. Puerperal trouble in some form is often at the bottom of the disease, and not a few cases are attributable to tuberculosis. The testimony upon the latter point has increased materially within the past few years. The tumor may become as large as a sausage or even larger, and septic phenomena are not wanting. Peritonitis and adhesive inflammation are always incidental, and the tubes may be dislocated in any direction and adhere to any of the pelvic viscera. If the adhesions bind the tubes down very firmly, the tumor may be reduced in size, and atrophic changes may take place with the formation of much connective tissue, which will ultimately change the character of the disease. The pain in such cases is usually severe and almost continuous, and if the patient has sufficient vitality to endure the strain a spontaneous cure may ultimately, after years of suffering, take place. Such a result is, however, a very rare one, and the tubes in such cases are never restored *ad integrum*. In other cases the pressure of the pus is sufficient to rupture the tube, sometimes with ensuing fatal peritonitis, sometimes with encapsulation of the pus in one or more abscesses contiguous to the tube. These abscesses may be quiescent, or they may perforate the rectum, vagina, vulva, or ischio-rectal region.

3. The third class of cases includes those which are principally of gonorrhœal origin. The pain is severe, there are frequent attacks of peritonitis, pus is constantly discharged from the uterus and frequently infiltrates the uterine cornua. Peritoneal adhesions are abundant, the ovaries become infected, abscesses are developed within and around the ovaries and tubes, and all the pelvic viscera become matted together in a firm mass. Rupture with fatal peritonitis is an occasional occurrence, but more frequently the patient is worn out with pain and sepsis. This is the variety which is so frequently seen in prostitutes and newly-married women who have been infected by their husbands. Spontaneous recovery in such cases is the rarest of exceptions; the longer the disease continues the more hopeless does it become. It has been my privilege to follow quite a number of such cases for periods extending through several years, and I can recall but one in which spontaneous cure took place. (In this case the patient was first seen in 1888, and was then forty years of age. She had had four miscarriages at the third month, and no full-term pregnancies. She had a large and hard mass in Douglas's pouch, which nearly filled it, and a discharge of pus from the uterus. There was almost constant pain for a long time. After two years of treatment I lost sight of her. Between two and three years afterwards she came to me again, in very good general condition, and I could discover no trace of any tumor in the pelvis, the uterus was movable, and the trouble from which she had so long suffered had entirely disappeared. My diagnosis had been purulent salpingitis.)

4. In a fourth class of cases the inflammatory process is a very slow one, involving principally the interstitial tissue of the tube. The quantity of pus secreted is small, the increase of connective tissue considerable, perito-

nitis with pain troublesome, but usually localized; adhesions to surrounding tissues are firm, and abundant in some cases and insignificant in others. The process may be malignant in itself, or associated with malignant disease of the uterus or ovary. In some cases hypertrophy of the muscular tissue is the principal phenomenon, as in certain cases of tubal pregnancy (in which cases, of course, the development of the process is not slow, but rapid); in others there is a process analogous to, if not identical with, the cirrhotic process, to which most of the organs of the body are susceptible. The condition is not a common one, and I do not recall any studies which have been made exclusively upon it. Of course the condition has been mentioned by many writers, and all gynæcologists of considerable experience have seen illustrations of it. If a woman with such a diseased organ reaches the menopause, spontaneous cure may result with the quiescence of the pelvic circulation and the atrophic changes of that period. The peculiarities of the pelvic circulation with its recurring ebbs and floods prevent the contraction and atrophy which the cirrhotic process entails in other organs after a shorter period of time.

It will be evident from the foregoing that, while spontaneous cure is not an impossibility with any of the forms of purulent salpingitis, it is not a result to be looked for with confidence in any cases except those of acute catarrhal inflammation. Doubtless the most favorable conditions for spontaneous cure (*i.e.*, cure without surgical interference) are present with those women who take to their beds early in the history of the disease, and receive the most patient and careful attention, especially in the judicious application of heat to the pelvis. Such cases were often treated under the old *régime* as cases of cellulitis, and everybody knows how protracted the cases were. The more rational treatment by abdominal section, if it exposes the woman to greater risks, usually gives better prospects of complete cure. For the great majority of the chronic cases I believe that a cure is impossible, except by the most radical surgical measures; but that feature of the subject is not now to be discussed.

FRACTURE OF BOTH THIGHS IN A NEW-BORN INFANT.[1]

BY B. H. DETWILER, M.D.,

Visiting Surgeon to the Williamsport (Penna.) Hospital.

THE surgical history of the fracture of the long bones in the new-born child is singularly defective. Dr. Hurst, in his elaborate work on obstetrics, states that such accidents occur, and should be treated on general principles, as are fractures in adults. Other authors ignore the subject

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[1] Read before the Lycoming County Medical Society.

entirely. In 1866, while I was in partnership with the late Dr. J. S. Crawford, of this city, a fractured thigh in an infant two weeks old came under our care. This was seen by another surgeon of local fame, who advised the mother to place it on a pillow and treat it as best she could. After consultation it was decided to place the limb in a well-padded long splint, made firm with extension, which in two weeks secured solid union. This was the only injury of the kind that came under my observation until I was called to see the following described case at Crafton, near Pittsburgh, on the 14th of July, 1893.

The subject of this interesting history is that of my own grandchild, which was born July 11, 1893. The mother of the child is twenty-three years old, five feet in stature, weighs one hundred and fifty pounds, and has always been robust and well. She menstruated the last time, previous to her pregnancy, from the 16th to the 19th of the previous September. On the third month she met with a fall, which was not followed by any untoward results. Dr. Reed, the attending accoucheur, reports that on the morning of the day on which she was confined everything was in a normal condition, but that at 2 P.M., and although she had strong labor-pains and the os was well dilated, the womb was high up, and the occiput was resting on the side of the ileum. This position was rectified, and during the succeeding twenty or thirty minutes she had two expulsive pains, and was delivered of a large boy, with both thighs motionless and broken,—the left being broken obliquely in the middle of the shaft and the right in the neck. Both thighs were very much swollen, but the application of hot water and alcohol reduced this in two days. On the 15th Dr. Reed and myself adjusted the fractured ends under the influence of chloroform, and bandaged the left limb with a roller of soft old muslin from the foot to the hip, and extending over the buttocks, abdomen, and chest. This layer was covered with a solution of silicate of soda. A splint of the proper length made of a shingle, with a block at its lower end for extension purposes, was well padded, applied, and covered with a layer of bandage and one of silicate of soda. Immediately over the points of fracture, both on the inner and outer side of the limb, splints of pasteboard were placed between the layers of bandage. Extension was made with rubber adhesive plaster fastened to leg and ankle, and tied to block on end of splint. The right foot was everted, and after extension the right hip was fixed with well-padded raw-hide splints, the whole bandaged and covered with a coating of silicate of soda. So soon as the limbs had been dressed in the above-described manner the baby ceased crying and went to sleep, and slept in one stretch for twenty-four hours, barring the time it took to nurse it. After an interval of eighteen days the child was brought to Williamsport, where, with the assistance of Drs. Brown and Glosser, the splint and dressing were removed. The limbs showed no evidence of pressure or injury of any sort from the apparatus. I take pleasure in presenting the child before you to-day, and you will observe that it is large and well developed, and has perfect use of his

limbs, as is shown by the characteristic movements which he uses in kicking and stretching. There is no thickening or shortening of either limb, and the child has been as comfortable as one could be in such a constrained position.

The want of reliable information in regard to the surgical treatment of these rare cases has led me to present the history of this case with the details of its management at what may seem to be needless length. In extenuation of this I would say that it is easy for a man of experience to tell you truthfully to "treat it on general principles;" but to an inexperienced surgeon in this special line of work these details will, I think, prove interesting, and when such cases fall into his hands he will be pleased to have at his command a description of the appliances with which others have attained success.

LACERATION OF THE CERVIX UTERI AS A FACTOR IN PRODUCING PLACENTA PRÆVIA.[1]

BY T. GRANGE SIMONS, M.D.,

Charleston, S. C.

THE subject proposed is one that has engaged my attention for some years, and I will endeavor to substantiate my theory by referring to three cases occurring in my own practice, briefly alluding to them, and only mentioning such facts as relate to our subject.

CASE I.—Mrs. H., a multipara, with a history of five premature deliveries from the fifth to the eighth months of utero-gestation, resulting, as was stated by her former physician, from laceration of the cervix uteri. I saw the patient first July 30, 1884. She was then about the seventh month of pregnancy. She had some slight pains with hemorrhage. Rest and fld. extr. viburnum prun. were prescribed. August 3, a sudden flow of blood without pain occurred. I found upon examination a large, old laceration that extended up the vaginal junction, the os undilated, the cervix obliterated; the hemorrhage was not great until August 9, about 8.30 A.M., when it was profuse. I found the os dilating and a soft, fleshy mass presenting; the patient was in good condition. I tamponned firmly. At 11 A.M., bleeding recurred; removed tampon; dilatation had advanced. I now determined to detach a portion of the placenta, and liberated the right segment of a centrally placed placenta; free bleeding ensued. I now drew the detached portion through the cervix and doubled it over upon itself, with the cervix between the folds. I kept it firmly compressed with my three fingers within the uterine cavity, rupturing the membranes. The head

[1] Read before the Southern Surgical and Gynæcological Association.

engaged, and, although my patient was very weak from loss of blood, she was still brave and self-reliant. Hemorrhage was controlled by the compression. The child, exsanguinated and dead, was delivered at 12.30 P.M. Ergot was used hypodermically on account of nausea.

CASE II.—Mrs. T., seventh pregnancy, and between the sixth and seventh month. Has a history of placenta prævia previously that nearly terminated her life. Was seen on the night of August 7, 1885. The patient was awakened by a free hemorrhage, and found presenting from the vulva a pouch of membranes. She attempted to replace them, but desisted, as the attempt increased the pains. I found her in good condition. I ruptured the membranous pouch, and the umbilical cord was found contained. Examination showed that a disk of placenta was firmly attached over the larger circumference of the os, and that the presentation was transverse. The bleeding was quite free. I quickly detached enough of the placenta to double it over and out of the os, and brought down the feet, and delivered a small child at 1.40 A.M. Ergot was given, but she vomited; it was then injected hypodermically. The placenta remained firmly attached. The patient became very faint and nauseated when I attempted to remove it. Uterine action was very weak; Credé's compression was used, but great pain, nausea, and prostration resulted if much pressure was exercised. The bleeding was quite free, but some uterine contraction occurred, and the placenta was still further detached. I found very firm adhesions under the insertion of the cord. The placenta was delivered and uterine contraction secured. There was an old and extensive laceration of long duration.

CASE III.—Mrs. G., multipara, with three children, and a history of three premature deliveries attended by profuse bleedings, repeated at periods of weeks and lasting for days. Now nearly four months pregnant. Has been bleeding for several days. Extensive laceration has existed for several years, but operative measures had been declined. When examined I found what I thought to be an extrusion of the fœtal membranes through the os, and attempted to turn the mass out with my fingers, but found it firmly attached within the uterus and the adhesions extending into the cleft of the lacerated cervix,—virtually an ectopic gestation. Sims's speculum showed the ovum firmly attached, with large blood-vessels extending from the attachments and over the laceration. The mass was expelled, and proved to be a twin conception.

The opinion I hold is, that such laceration tends to produce the condition of placenta prævia, the whole uterus being kept in a state of hyperæmia by the injury; and that endometritis results in a degree not always sufficient to prevent conception; also, that the change in the shape of the uterine cavity produced by the laceration and the inflammatory processes resulting from such laceration tends to favor the gravitation of the ovum to the cervical zone and its attachment over or within the cervix uteri, and in the case just mentioned—No. III.—resulted in the spread of the

fœtal membranes, and that the villosities found ready attachment to the vascular surface of the old laceration. The frequent recurrence of premature expulsion of the contents of the gravid womb by women with neglected cervical tears has been observed by all of us. May not this tendency to abortion be aggravated by the changes in the uterine cavity and by the increased vascularity of the whole organ, but especially in the cervical zone, which is due to the prolonged irritation produced by the laceration? Such injuries do not prevent conception, for we note the frequency of the occurrence of pregnancy and its frequent interruption by abortion. This was illustrated in the three cases I allude to. We are taught that in the early stages of pregnancy in a healthy womb the cervix is but slightly hypertrophied, and that it is less abundantly supplied with blood than the body of the uterus, and that the cervix is not subjected to the shock or stimulus caused by the presence of the growing ovum. The intra-vaginal portion of the cervix also loses its firm consistence, and becomes softer as pregnancy advances; these changes are arrested or prevented by the presence of an old unhealed laceration that keeps up a chronic state of irritation, with its consequent hypertrophy and hyperplasia. It is true that the process of softening is less in the multigravida, and that frequent pregnancies tend to produce chronic inflammatory conditions in the cervix and endometrium. Also, that the cavity of the uterus is changed in contour by repeated pregnancies, that there is a greater tendency to placenta prævia in those who have had frequent and rapidly repeated pregnancies, and that the condition is rare in the primigravida. May this not be due to the fact that in the primiparous woman the healthy condition of the uterus, and especially the normal condition of the cervix, prevents the tendency to a descent of the ovum and its subsequent attachment within or near the cervix, where in the normal cervix it will not find sufficient blood-supply to sustain it? The frequent existence of cervical lacerations may be potent causes in producing placenta prævia, for we all know how often such lacerations exist, and how comparatively seldom do women submit to treatment for their abatement, although frequent abortions and premature labors occur, with all the dangers and restraints imposed by such conditions; yet they are borne in silence, and operative measures declined.

In my search through the literature on this subject I have found little that will substantiate my theory. In a paper read before the American Gynæcological Society, by Dr. Ed. Warren Sawyer, of Chicago, on "Partial Rotation of the Ovum as a Cause of Placenta Prævia" (see vol. xiv., 1889, p. 317), he speaks of a partial detachment of the ovum from its normal site, and alludes to two cases,—one a primipara, who jumped from a carriage drawn by runaway horses, in her fifth week of pregnancy: uterine hemorrhage resulted; pregnancy was continued to term, but placenta prævia was the condition. The other case, a multiparous woman, who, in the early weeks of pregnancy, stepped off a chair and received some shock, was also a case of placenta prævia. He asserts that the ovum may be

partially detached, rotate upon its axis, and form new adhesions within the cervical zone. The point of such contact becomes the placental site, and thus placenta prævia may be produced. The permanent condition of traumatism that exists where there is an unhealed lacerated cervix, with the changes produced in the shape of the cavity, all tend to produce a condition favorable to abortion; but should the ovum be arrested and become implanted within the cervical zone, we have a cause for placenta prævia. It is true that the irritation is aggravated by the hyperæmia already existing, that pregnancy is most often interrupted in the early weeks, and that such premature interruptions of pregnancy are usually attended by profuse hemorrhage.

A CASE OF FRACTURE OF THE JAW.

BY J. D. THOMAS, M.D.,

Professor of Genito-Urinary and Venereal Diseases, Western Pennsylvania Medical College; Surgeon to South Side Hospital, Pittsburgh.

On the morning of July 18, V. K., aged thirty-seven years, a Polander, was brought to the South Side Hospital in a semi-comatose condition, from concussion of the brain and with a fearful wound in the neck. The injury was received in the following manner: While "turning-up" or "roughing" a large grindstone, which was going at a high rate of speed, with an iron bar about six feet in length, one end of which he held in his hands, the other end pressed against the stone and resting upon a cross-piece which was near the face of the stone and served as a fulcrum, the short arm of the bar was caught and carried down, thus throwing up the long arm. As the long arm went up it caught the patient immediately above and to the left of the sternum, tearing out a large flap, this flap extending to the right as far as the sterno-cleido-mastoid muscle, then upward a short distance, and then to the left and upward as far as the left mental foramen. This flap was lying over the left side of the neck when the patient was brought in. In addition to the above injuries there was a communication with the mouth; the vessels in front of the trachea were all torn, the trachea in its upper part opened and an inverted V piece of the inferior maxilla gone. At this point the maxilla was fractured, and also at both angles. The V piece knocked out of the chin was so large that when the two bone surfaces were brought in apposition the line of fracture was only three-eighths of an inch long.

From the above description of the injury it will be readily understood that the amount of blood lost before the patient reached the hospital was great. Immediately on entering all of the bleeding points were controlled by torsion, the wound made aseptic, the flap laid back and stitched in place,

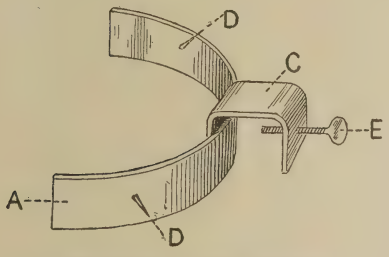
with a drain-tube passing from the left mental foramen to the sternum, and covered with an antiseptic dressing.

I now turned my attention to the fractured maxilla, and it was the difficulty in managing this feature of the case that induced me to make this report.

With the patient lying upon his back it was found that the left fragment dropped but slightly backward at the middle fracture, while the right fragment dropped backward one-half inch at the same point. There was not much tendency to displacement of the fractures at the angles. There was not much difficulty in bringing the bone surfaces in apposition in the median line; but they immediately fell apart when not held by the forceps. External splints could not be applied owing to the serious injury to the soft parts, but even if they could have been utilized they would have been useless in this case. It was attempted to hold the fragments together by passing wire around the teeth; but this was of little service, as is usually the case. I then tried a strip of sheet lead, having given it the form of a trough and shaping it to conform to the teeth and alveolus. The fracture being adjusted and held in place, this trough was placed in position, and I attempted to "pinch" it in at the interdental spaces; but this again was a failure. A dental surgeon was now called in, and he tried faithfully to get a correct impression of the teeth and jaw, but owing to the restlessness of the patient and the difficulty in holding the fragments in apposition a sufficient length of time, a satisfactory impression was not obtained.

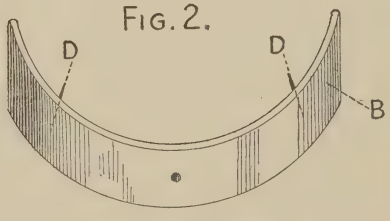
Failing with all the above methods, I then had the instrument-maker make the apparatus shown in Figs. 1 and 2. Fig. 3 shows the instrument

FIG. 1.



A, inside splint; C, clamp welded to A; D, sharp pins; E, screw.

FIG. 2.

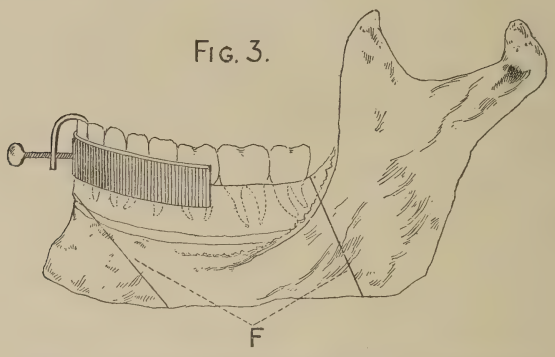


B, outside splint; D, sharp pins.

in place. The splints were made of soft steel, so that they might be bent and thus adjusted to the contour of the surfaces to which they were to be applied. *A* is the inside splint; *B* the outside one. The clamp *C* was welded to the splint *A*, making one piece. This splint was placed behind and below the teeth over the alveolar process. The splint *B* was fitted in front and below the teeth over the process. The splint *A* was first applied, and by taking hold of the clamp and drawing upon it the sharp pins *D* were sunk into the process and held until the splint *B* was adjusted; then the screw *E* was

run down upon it, causing the pins of this splint to penetrate, when the parts were found to be held nicely in place. The lines at *F* show the seat of the fractures at the angles, and also the part of the bone lost from the chin. The internal splint was two and one-fourth inches long and one-fourth

Fig. 3.



F, seat of fractures at angles and piece of bone lost from chin.

of an inch broad. The external splint was the same width, but half an inch longer. The pins were three-sixteenths of an inch in length and quite sharp. The splints may be made shorter.

Although the patient died on the fifth day from shock and exhaustion, for the four days during which the instrument remained in position the fracture was held firmly and correctly in place, and it appeared to serve the purpose for which it was intended most admirably.

TORSION OF ARTERIES FOR THE ARREST OF HEMORRHAGE.

BY CLAUDE A. DUNDORE, M.D.,

Philadelphia,

Late First Assistant Surgeon State Hospital for Injured Persons of the Anthracite Coal Regions of Pennsylvania.

To Amussat is ascribed the credit of having first observed the effect of the torsion of arteries in arresting hemorrhage and of first using this method in operations. Having observed that in some gunshot, contused wounds, and severe lacerations, there was little or no bleeding, even from large vessels, he reasoned that by artificially producing this contusion or laceration of the vessels the identical result must follow.

In instituting a series of experiments to test his theory he met with no satisfactory results, but was surprised, on one occasion, after having slightly twisted an artery, by the fact that the flow of blood from that vessel ceased. He therefore began experimenting on dogs and other animals, and met with

success even in the cases of the brachial and femoral arteries. Briefly his method was as follows: with a small pair of forceps, made for the purpose, he took hold of the divided vessel firmly, and drawing it a quarter of an inch or more from out the surrounding tissues, proceeded to strip it of its sheath; then holding the vessel back of the forceps between his left thumb and forefinger, he began to twist the end of the vessel. One method was to continue torsion until the part of the vessel contained between the blades of the forceps was detached; by the other he gave from four to twelve or more twists of the vessel on its axis, according to its size; he used the latter principally.

When the forceps were detached the vessel retracted, being conical in shape at the extremity, with a knot on the end representing the part held within the grasp of the forceps.

Upon examination he found that the internal coats of the vessel were severed and had retracted, forming the centre of the clot, which reached to the next collateral. On injecting water into the vessel above the clot, he noticed that the knot at the end of the artery became rigid and stood up, but there was no untwisting, no matter how much force was employed. A week later the clot and membranes had become solidified and the vessel obliterated to the next collateral branch.

In the year 1829 he published his discovery with the results he had obtained; he performed several amputations before his colleagues, among them being four of the thigh, and one of the shoulder-joint upon a man fifty years of age; all were successful, there was no secondary hemorrhage, and in all but one case primary union took place.

He became celebrated, and his method was very soon adopted in other countries; Fricke, of Hamburg, and Schroeder, of Dresden, applied torsion to the temporal and brachial arteries in various operations, with success, and the latter surgeon published a pamphlet on the subject which was widely read and appreciated.

Delpech was unsuccessful in two out of twenty-three cases operated upon, but as there was no secondary hemorrhage in either case, and as one patient died eighteen days, the other forty-eight days, after the operation, it is evident that torsion was not accountable for these results.

Amussat appreciated the advantage of torsion over the ligature, inasmuch as he stated that there was no foreign body remaining in the wound to delay union, and that it required no assistance, and was especially advantageous on the field of battle.

The application of this method has changed but slightly since the date of its adoption by Amussat; the bleeding vessel, having been stripped of its sheath and adjacent tissues, is grasped longitudinally with a pair of forceps, which are then locked and held in the right hand; with another pair of forceps, held in the left hand, the vessel is held from a quarter- to a half-inch posterior to its extremity. The right hand now slowly rotates the forceps grasping the end of the vessel, and this may be continued until the end

tears off; this is called unlimited torsion; or the operator may give the extremity from four to eight twists, according to the calibre of the vessel, and leaving the cap thus formed attached to the vessel; this is called limited torsion.

The limited is preferable for vessels of any considerable size, as the cap forms an additional safeguard, and the external coat is not so apt to be weakened in case of a diseased tendency of the vessels. For the smaller ones it makes little difference which is used, and I generally rotate the extremity of the vessel until it is twisted off.

Bryant[1] says, "The physiological arguments in favor of torsion are very great, and the practical advantages seem to be no less. After seven years' experience in its practice, applied to vessels of all sizes, the femoral being the largest, I have had no mishap. I have observed that wounds have united more rapidly and kindly, primary union being the rule.

"There has been less constitutional disturbance after operation, and consequently less liability to traumatic fever, pyæmia, and other complications, such as we are all too familiar with in the practice of surgery. I have had stumps heal in a week, and the patient up in two weeks without one single drawback, rapid and uninterrupted convalescence following the operation."

He states that in two hundred consecutive amputations of the thigh, leg, arm, and forearm, all the arteries were twisted, one hundred and ten of them being the femoral, and that there was no secondary hemorrhage in any case.

Moullin[2] says, "There is no question as to the very great advantages that torsion possesses. It is better than forci-pressure, for while the end is crushed in the same way into a flat ribbon, the internal and middle coats, instead of being merely broken off, are coiled up and rolled round together inside. There is no ligature to be absorbed (although now that catgut is chiefly used this ceases to be an advantage), and temporary closure does not depend on the security of a knot; in other words, there is no fear of recurrent hemorrhage from this giving way. The end of the vessel, if suppuration occurs, sloughs off, it is true, but so it does with a ligature. If, on the other hand, the wound heals at once, it rapidly becomes organized into a cicatrix. For plastic surgery there is no doubt as to its superiority, for even catgut, however prepared, is a foreign body, and diminishes the chance of primary union. The largest vessels can be secured with perfect safety, and even when they are diseased, if the surrounding tissues are caught and twisted up with the end, a conical cap is formed which is sufficient to resist internal pressure until (unless nutrition is exceedingly feeble) organization takes place."

Murdoch[3] states the advantages of torsion as compared with ligation as follows:

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[1] Practice of Surgery.

[2] A Complete Treatise on Surgery.

[3] Paper read before the Mississippi Valley Medical Association, October, 1890.

"1. The greater facility with which it can be applied. I am fully aware that this proposition is disputed, but to those who are familiar with both methods there can be no doubt that torsion is the easier of the two. For the ligation of an artery an assistant is required to seize the vessel and draw it out while the ligature is applied. For torsion the operator requires no assistant. The vessel must be seized by the forceps in either case. In torsion it requires only three or four turns of the forceps to complete the process, which can be accomplished in as many seconds. When a ligature is applied, let the operator be ever so skilful, the thread may break or slip off the vessel; but if neither of these accidents occur, the process cannot be accomplished in anything like the same time.

"2. Torsion is a safer method, being less liable to be followed by secondary hemorrhage. This proposition has been absolutely proven by the experience in the use of torsion at Guy's Hospital, London.

"3. Healing is facilitated because the wound is free from any irritating or foreign body. This proposition is so plain that it should not require an argument. It was true before the antiseptic treatment of wounds had come into such general use, but is doubly so now.

"The catgut ligature is, no doubt, a safer ligature than the silk, for it does not require an ulcerative process for its discharge, and when this ligature has been made thoroughly antiseptic it is no doubt the best. But a ligature rendered thoroughly antiseptic is not always at hand; and those surgeons who have had most experience with the antiseptic treatment of wounds will, I think, be the first to admit that, in spite of their most careful attention, septic germs are often introduced into the wounds by means of the ligature.

"Even after every precaution in preparation and preservation, the handling of a ligature in its application is a frequent source of infection. But there are other objections to its use. The catgut ligature may dissolve before the artery has become closed by the natural hæmostatic process, or it may unbind. Both of these accidents have been the frequent cause of secondary hemorrhage."

He gives the following table of amputations in which torsion was used at the Western Pennsylvania Hospital, Pittsburgh:

Femoral	116	times.
Popliteal	18	"
Axillary	18	"
Anterior tibial	317	"
Posterior tibial	317	"
Brachial	81	"
Radial	45	"
Ulnar	45	"

The above statistics, by men of such sterling ability and keen appreciation of all that benefits surgery, should certainly leave no doubt as to the

efficacy of torsion in any person's mind who is willing to reason fairly and without prejudice.

I have used torsion in one hundred and thirteen cases of all kinds, with no sign of secondary hemorrhage, and with fewer cases of delayed union of the tissues. It has been stated by some authors that in cases in which the vessels are diseased torsion is not applicable, owing to the fragility of the coats of the arteries; on the contrary, I think it is safer than the ligature, which very often, even when little force is exerted in tying, partially or entirely severs the external coat, thus, by hastening the sloughing of the end of the vessel, tending to produce secondary hemorrhage.

In cases of diseased vessels, as in operating for senile gangrene, the limited method of torsion should only be used, and the end of the artery should not be rotated more than twice. It has been proved by Bryant[1] that the internal coats are severed, retract, and revert as readily with one or two twists, in cases of diseased vessels, as they do in the healthy ones when two or three times the number of twists are necessary.

In plastic operations our first and all-important object is to secure primary union, and the fact that we are enabled to close the wound without leaving a loop of catgut to irritate or produce sepsis, and delay union, is an advantage which cannot be too highly appreciated.

There are men who say they have no confidence in torsion, and that they fear secondary hemorrhage. Why? Its utility and safety have been demonstrated by surgeons of repute, and whose statistics are above all doubt. I have found that many of those who have this lack of confidence will themselves inform you that they have had no experience in this direction, unless it be with very small vessels and capillaries. I think if the truth were known they merely gave these small vessels a rough twist with the forceps, which it is known will generally arrest hemorrhage in the capillaries; and these men led themselves to believe they had applied torsion. Is it surprising that they should fear to use the same careless method on vessels like the femoral or brachial?

The surgeon who has not given torsion a practical trial, who has not used it in operating and studied its results, is not in a position to either doubt or condemn its reliability. Experience is the only measure of its utility. I am satisfied that those who will give it their practical attention will be amply repaid, and thoroughly convinced that as an agent for the arrest of hemorrhage torsion is the equal of the ligature in every respect, and its superior in many.

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[1] Medical and Chirurgical Transactions, 1868.

NOTES FROM THE DERMATOLOGICAL CLINIC OF THE MISSOURI MEDICAL COLLEGE, SERVICE OF PROF. W. A. HARDAWAY, A.M., M.D.

REPORTED BY C. F. HERSMAN, M.D.

During the past year the following interesting cases have presented themselves for treatment at the Dermatological Clinic of the Missouri Medical College.

PEMPHIGUS FOLIACEUS.

On May 24, 1893, E. P. was first seen. The patient was a married woman aged thirty years, a native of Russia, and had been in this country several years. She was the mother of four children, all of whom were in good health. The woman had always enjoyed good health up to the time the present illness first manifested itself. At the time the first notes were taken she was apparently in good general health, being stout and with no evidence of any abnormalities in any of the internal organs. The disease of the skin for which she sought relief first made its appearance four months before she came to the clinic, while she was eight months pregnant. The first evidence of the disease was the eruption upon various portions of the body of a few small blebs. At this time she suffered from pains in the shoulders, back, and limbs, and a sensation of chilliness so that it was difficult for her to keep warm enough. At about the same time as the eruption on the skin she noticed one or two blebs in the roof of her mouth, and her throat felt very sore on swallowing, while there was a constant discharge of a thick yellowish matter into the pharynx. The blebs upon the skin would remain out a few days and then disappear, according to the statement of the patient, others coming out on other parts. At the time of the first examination there was an area on the right cheek and zygomatic region as large as the palm of the hand which was entirely denuded of epidermis. The central part of this area was of a bright red color, the surface finely granulated, the skin not infiltrated. There was a constant escape of a thin transparent yellowish fluid like serum. The picture was that of a burn of the second degree. The shape of the denuded area was irregularly oval. Extending all around the border was a thin strip of epidermis raised from the underlying skin, but still attached to the surrounding healthy epidermis. This lesion was, according to the statement of the patient, one of the first blebs to appear, and it had never healed as the others had. On the right side of the nose was another bleb about an inch in diameter, with flaccid walls and cloudy serous contents. In the roof of the mouth was a similar bleb, which at the time of the examination had rup-

tured, leaving a red denuded surface. In the pharynx might be seen stringy muco-pus apparently coming from the posterior nares. Her nares were inspected and several superficial ulcers were reported to exist there. On the back in the left inter-scapular region was a thin papery scale covering a faint red spot, which seemed to be a healed bulla. The patient was put upon increasing doses of arsenic, and after returning to the clinic once disappeared for three months. When next seen she was confined to her bed, being weak and having lost much flesh. There were upon the trunk and limbs a number of blebs, mostly of about an inch in diameter, though some had run together, with flaccid walls and cloudy serous contents. The hairy scalp was not spared. Many of the blebs had ruptured and there seemed to be no tendency to heal. The denuded skin remained uncovered by epidermis and secreted constantly a thin serous fluid. There was no thickening or other change in the affected skin. The diseased areas were separated by healthy integument. The woman was very miserable and suffered from lying upon the raw surfaces and from the pressure of the bed-clothes. At this time new bullæ seemed to be forming, though their appearance was very slow, her attendant saying that in the several days he had observed her only one or two had developed. She was next seen the first part of October, 1893. All the body was now involved, with the exception of small areas of healthy skin scattered over the upper extremity. Her general condition was extremely bad; she was very weak, and emaciated till she was little more than skin and bone. The skin of the trunk presented a mottled aspect, being laid off in irregular areas of gray and red, the gray color being derived from thin papery scales loosely attached, and the red being due to the denuded skin. The entire trunk and lower extremities were in this condition, but the face and upper limbs were not so much affected, there being left some small portions of healthy skin scattered among the diseased areas. There were upon the scalp a number of thin dry scales an inch in diameter which were loosely attached to the underlying skin. When one of these was removed the skin was found to be slightly reddened, looking not unlike a recent scar. The hair was much thinned, that which remained being in tufts. In the corners of the mouth, at the flexures of the joints, and wherever there was motion the skin had cracked and was very painful. She complained of a sensation as though the skin was very much drawn and tense. She suffered constantly from cold though the weather was warm. Her mouth and throat felt sore and the buccal mucous membrane looked dry and wrinkled. There was a diarrhœa of moderate intensity, the stools being of the consistency of mush and of a light yellow color. She vomited frequently, the vomitus consisting of what she had eaten and a greenish fluid like bile. She could not retain her urine for any length of time, but it seemed that this was more from indifference than from inability. The urine was loaded with urates and contained neither albumin nor casts. She was in a peculiar mental state, seeming part of the time to be delirious, though the fact that her intelligence was at no

time of a very high order and the poor use of any language which she had, made it a matter of no little difficulty to estimate her true condition in this regard. When left to herself she was constantly muttering exclamations of pain. She could be readily roused and would then try to answer questions. The temperature was normal, no rise having been noted at any time.

Owing to the fact that the patient was constantly changing physicians, many of whom evidently had no conception of the real nature of the disease, no systematic treatment has been pursued. Since she has been at the Missouri Medical College clinic the last time, the treatment has consisted in the application locally of unguentum vaselini plumbicum on cloths and such general treatment as her very low condition made necessary. The local treatment has added much to her comfort, and there is a tendency on the part of many of the denuded areas to become again covered by epidermis. The well-known inevitable end of the affection prevents one from deriving any encouragement from this improvement.

EXTRA-GENITAL CHANCRE.

During the last few months five cases of extra-genital chancre have been seen. Four of them occurred upon the lips of women. Three were situated on the upper lip and one on the lower. One of those upon the upper lip was acquired by kissing; another by playing upon a brass horn which cut the lip. In the other two cases no history that could throw any light upon the manner in which the sore had been got could be obtained. The most interesting case was that of a young man who presented himself with an ulcer as large as a half-dollar upon the left cheek. The ulcer was very shallow and filled with fine, bright red granulations. For half an inch all about the sore extended a dense infiltration, which also passed under the floor of the ulcer. There was marked enlargement of the submaxillary lymphatics on the left side, but the other ganglia seemed little if any involved. The body was covered with a mixed rash consisting of macules and small papules. The sore had existed for two months and the rash had been out two weeks. Three weeks before he first noticed the sore a woman had bit him on the spot where the sore afterwards appeared. The skin was not broken as far as he could tell, though he examined the spot carefully. The first evidence of trouble was a small "pimple" which had a little pus at the apex.

LOCALIZED SCLERODERMA.

The patient was a woman forty-two years old, who had always had good health. The disease for which she sought aid first developed ten years ago. She could not say more, as to the beginning and evolution of the trouble, than that she had first noticed a redness and stiffness of the fingers, which she attributed to a frost-bite sustained shortly before. This had grown gradually worse and the fingers had often pained and ached, especially when the weather was cold. On examination the ends of the thumbs and fingers

of both hands were found to be of a reddish-blue color. This discoloration extended on the thumbs as far as to the interphalangeal joint and on the fingers to the first interphalangeal joint. The red skin had a glazed, shiny look. On feeling the skin, not only that portion which was discolored but all the skin of the fingers was found to be thickened. The skin could nowhere be picked up from the underlying tissues, and for this reason the fingers conveyed the impression that they were carved out of a piece of wood or some such material. The thickening of the skin extended on to the backs of the hands and then faded away into the normal tissues so gradually that it was impossible to say just where the pathological process ceased. On the tips of the thumbs and little fingers of both hands were small depressed scars where the patient stated that ulcers had existed some years previously. On several of the knuckles were small warts. There was apparently no atrophy of the skin in any portion. The nails seemed somewhat thickened, and there was slight hypertrophy of the nail-beds. The woman said that several times she had lost her nails, not all at once, but one or two at a time. The patient stated also that when the weather was cold her fingers became of a decided bluish color where they were usually red, and excruciating pain often occurred. The treatment ordered was to immerse the hands in water as warm as could be borne for ten minutes twice a day and, after drying them, to rub in for five minutes an ointment containing two per cent. of oleate of mercury. After two months of this treatment there was noticeable improvement, the skin being thin enough to allow of picking it up with difficulty. There was also less stiffness of the fingers when they were bent.

In this case there was no change in sensibility of the skin nor were the bones or other tissues affected.

This case resembles in some of its aspects those rare instances of sclerodactyle without involvement of other parts of the body, such as have been reported by Haslund. The development after exposure to cold, the thickened and bound-down condition of the skin, the discoloration, and the painful effect of cold upon the fingers are points in common. The analogy fails in that in the case above reported there was absolutely no hint of any deformity.

REPORT OF A CASE OF CONTUSION OF THE ABDOMEN AND BACK, FOLLOWED IN FIVE MONTHS WITH INTESTINAL LESIONS.[1]

BY PAUL F. EVE, M.D.,

Surgeon of the Louisville and Nashville Railway and the Nashville and Chattanooga and St. Louis Railway.

On the evening of November 19, 1892, I was called to attend Mr. C. A. McA., a brakeman on the Henderson Division of the Louisville and Nashville Railway, who had been injured near Guthrie, Ky., on the morning of November 18, by falling between the engine and car, his body being caught between the bumpers of same. I learned from those who first reached him that when extricated he was unconscious and remained so for several hours. He was taken to Guthrie, Ky., and there attended by a physician until the next day, when by his urgent request and that of his family he was removed to his home in Nashville. The physician who attended him gave him stimulants and a hypodermic injection of morphine to relieve pain. When seen by me he was still suffering from shock, and complained of great pain in the abdomen and back. He stated that he had had several vomiting spells, and those who were with him remarked that the matter vomited was of a dark character and of an unpleasant odor. I asked how long since vomiting commenced, and was informed it took place about three hours after the injury. Stimulants had been freely given during his trip and vomiting had occurred several times during his journey. As soon as possible I began an examination of the back and abdomen, but was deterred from doing so by his complaining of extreme nausea, followed by a dark and offensive emesis of a stercoraceous character. When vomiting ceased and patient became quiet, as careful an examination was made as possible, which revealed two large excoriations on his back, extending from the ninth dorsal vertebra to the middle of the sacrum, and running inward to about half an inch of the transverse process of the same. No excoriation or even redness could be discovered upon the abdomen, but it was tympanitic and tender to the touch, and so great was the pain elicited that a further examination was abandoned. Upon questioning him, I learned that he was of a constipated habit, and had not had an action of his bowels for five or six days previous to his injury. His pulse was quick and feeble, 130 to the minute; respiration 28, and temperature 101°. I left one-grain doses of calomel, to be given every three hours until four doses had been taken, and gave him a hypodermic injection of morphine and atropine to induce quiet.

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[1] Read before the National Association of Railway Surgeons, 1893.

I saw him early the next morning, found that the calomel had quieted his vomiting for five or six hours, but that after that time he had vomited the same characteristic matter as before, and that no movement had occurred from his bowels. He was very restless and complained of a tightness and great pain in the abdomen. By means of a rectal tube inserted as far as possible an injection of senna, salts, and oil in hot water was administered, followed in two hours by a copious action, containing quantities of scybalous masses, to the great relief of the patient and my own gratification. Several other actions occurred the same day. In the evening the patient was almost free from pain, pulse stronger, 102 to the minute, respiration 22, and temperature 100°, abdomen flaccid and but little pain complained of upon examination; no enlargement of abdominal viscera could at this time be detected. I placed him upon a tonic treatment of strychnine, phosphoric acid, etc., and ordered a restricted but nutritious diet. An ointment in the mean time had been placed upon the back, but excoriations upon the third day looked angry and began to take on ulcerative action. Four or five large superficial sloughs were removed on the twelfth day, but under antiseptic treatment the wounds did nicely and were entirely healed at the end of the fourth week. The patient during this period made a very slow and tedious convalescence, and complained every now and then of colicky pains in the bowels, although they were regular, moving once each day attended with no pain at stool; the pulse ranging from 85 to 98, the respiration from 20 to 22, and the temperature from 99° to 100°. Although quite weak and suffering with occasional colicky pains, he was enabled to sit up for a short while at the end of the fifth week, and to walk about the room at the end of the sixth week. Repeated examination failed to discover any fracture or dislocation of any of the vertebræ, and the patient's history was not that of struma or tuberculosis. His appetite had become at this time fair, and he was enabled during the eighth week to be driven to my office. At this visit he still complained of colicky pains, and, attributing them to fermentation of food, I placed him upon lacto-peptine, bismuth, etc., followed by willow charcoal, but he received little or no benefit from them. These colicky pains became more severe and frequent, and at times he suffered greatly. He visited me again two days later, stating that the night before he had been taken with a severe pain in his bowels, and that on awakening he had been startled by hearing a gurgling sound in his bowels, which was followed by a knotting of the same, and which he could distinctly feel through the abdominal wall. During this visit and just before the examination was commenced, he was taken very sick, placed upon the bed, and the abdomen exposed for inspection, and as there were several of my professional brethren in the office at this time, they were called in to assist me in conducting the examination. A violent cramp came on, and we could not only feel but distinctly see the knotting of the bowels through the abdominal wall, confined to the hypogastric, right and left inguinal, and lumbar regions. These symptoms lasted for about one minute, and the patient suffered great pain

during that time. A consultation was held and patient closely watched. He continued to have one bowel movement every day, and complained of no pain at defecation. Every remedial agent that could be thought of was tried and his diet was restricted; but to no avail, the patient still at times suffering with the above symptoms, which could be relieved only by large doses of opium. This state of affairs continued on and off during the whole of the after-treatment. About the twenty-third week, finding his condition not improving and believing a change might benefit him, with the consent of my consultants the patient was sent to the country, where he remained for two weeks. To our great disappointment no change for the better occurred, but, on the contrary, his condition gradually grew worse, and the symptoms above described became more frequent and painful. During the whole of this time, when the patient was not suffering from pain, he was enabled, though very weak and feeble, to sit up or walk about a little.

Upon his return to the city he was brought to my office, and stated he had noticed a few days before leaving the country a hardness in the lower part of the abdomen. Upon examination I found an induration in the hypogastric region extending into the left inguinal, and reaching to the left lumbar. There was no particular pain upon examination and no fluctuation could be discerned. Thinking that an abscess was forming, I ordered hot fomentations to the part and visited him the next day. When I saw him I found the induration softer and I thought I could discover some fluctuation. That evening I was telephoned for, and informed that the patient was suffering excruciating pain, but upon my arrival I found him entirely relieved, examination revealing the fact that the abscess had ruptured and was running freely. Fomentations were continued, as the abscess still discharged freely. The next day the aperture was seen to be about one-fourth of an inch in diameter; while I was there spasms of bowels came on, accompanied by a flow of pus, followed by gases of a decidedly fæcal odor. The diagnosis of fistulous opening was fully confirmed the next day by a discharge of fæcal matter, as also by the odor of onions which had been eaten the day before. The condition of my patient, which had at no time been good, became much more unfavorable, the pulse weak and vitality low. The patient was removed to the hospital on April 30, 1893, and preparations were made for active measures. Notwithstanding the dietetic and medicinal treatment instituted he gradually grew worse, and by advice of consultants I opened his abdomen on May 4, when I discovered that the external opening led into a fistulous tract about eight inches in extent, running in a direction upward from the middle of the hypogastric through a portion of the left inguinal to the left lumbar region. The ileum was firmly bound down to the tract by adhesions, and considerable force was required to separate it. Three openings of the ileum were brought to view, all of which communicated with the fistulous tract, two of these had ulcerated almost three-quarters of the diameter of the gut, while the intestines, above and below, were greatly distended. These openings of the ileum

occurred at its lower portion, about eight inches from the ileo-cæcal valve. About twenty-four inches of the gut were excised, and an operation for uniting the ileum to the colon determined upon. The patient sank rapidly, and the lower segment having been sutured together, the patient being now in a dying condition, the upper segment was brought out to the right inguinal region so as to form an artificial anus, and the abdomen closed as quickly as possible. The patient survived the operation twenty-four hours.

An autopsy was made four hours after death, on May 5. Special attention was paid to the solar plexus of nerves, as my diagnosis, in which my consultants concurred, was concussion of said plexus followed by inflammation. The intestines were markedly distended, especially the large ones. The tract was measured, and found to be about eight inches in extent, and large scybalous masses were found in the large intestines. The solar plexus and splanchnic nerves were found to present evidences of inflammation, and the mesentery of the large and small intestines a similar condition. Just below the solar plexus, on the left side, was found a sphacelated space, one inch in circumference, and the peritoneum, which we expected to find thickened, etc., was, contrary to our expectation, almost normal in condition, save in that portion around the fistulous tract. No fracture or dislocation was found, though carefully sought for, and all the other abdominal viscera were found in good condition, save evidences of slight inflammation.

When we take into consideration the length of time elapsing before any definite pathological condition manifested itself, save the occurrence of occasional colicky pains and cramps, I think I am safe in concluding that there was at the time of injury no lesion of the bowels or undue inflammation of the abdominal viscera. If there had been, they would have inevitably presented themselves by unmistakable symptoms long before they did. When we review the literature of inflammation, we ascertain that it spreads by either continuity or contiguity of structure through the lymphatics or blood, or finally through nervous agency. Now, I reason, had it followed the first two methods it would have shown itself by symptoms marking such progress, but, as before stated, these did not appear. If through the blood or lymphatics, phenomena peculiar to this morbid condition ought also to have been detected, but they were conspicuously absent; we must therefore adopt the last of these theories, viz., nervous agency, and, as it is so subtile in its action, I shall unhesitatingly pronounce this as the avenue through which it progressed. Yes, I believe that the solar plexus, through concussion of its fibres, etc., formed the origin of this trouble, and from this as a centre the inflammatory action spread through the various nerves which issue from it, carrying its baneful influence also to those nerves which are received into this plexus. Viewing the anatomical construction of this plexus, we find that it consists of a great net-work of nerves and ganglia, which receive the great splanchnic nerves of both sides and some filaments from the right pneumogastric, and distribute these branches to the viscera in the abdominal cavity. One of its branches, the superior mesenteric plexus,

surrounds the superior mesenteric artery and distributes nerve filaments which supply all portions that receive this vessel.

The intestinal canal contains an automatic motor centre within its walls, the plexus myentericus of Auerbach, which lies between the longitudinal and circular fibres of the gut. It is this plexus which enables the intestines when cut out of the body to execute, apparently, spontaneous movements for some time. If this centre is not affected by any stimulus, the movement ceases. This condition is termed *aperistalsis*. When blood containing the normal amount of gases passes through the intestinal blood-vessels, the quiet peristaltic action of health occurs,—called euperistalsis,—that is, provided no other stimulus be applied to the intestines. All stimuli, therefore, applied to the above plexus increase peristalsis, which frequently becomes very violent, causing an evacuation of the contents of the large gut, and also producing spasmodic contraction of the musculature of the intestines, this condition being known as dysperistalsis. The continual application of strong stimuli produces intestinal paresis or exhaustion, which finally results in complete paralysis of the intestines. In this condition the intestines are greatly distended, as the paralyzed musculature does not offer sufficient resistance to the intestinal gases, which are expanded by heat, this condition being known as meteorism.

The action of the splanchnic is fourfold. *First*, it is the inhibitory nerve of the small intestines, as long as the circulation is undisturbed and the blood in the capillaries does not become venous. When this latter condition takes place, stimulation of the splanchnic increases peristalsis. *Second*, it contains inhibitory fibres which are easily exhausted by venous conditions of the blood; and also motor fibres, which remain excitable for a long time; as after death stimulation of the splanchnic always produces peristalsis, similar to stimulation of the vagus. *Third*, it is the vaso-motor nerve of the intestinal blood-vessels, and thus governs the largest area in the body. When stimulated, all the vessels of the intestines containing muscular fibres contract; when divided, they dilate. *Lastly*, it is the sensory nerve of the intestines, and under certain circumstances gives rise to very painful sensations.

It has been known for a long time that injuries or diseases of nerves may act as predisposing causes of inflammation and its results, by diminishing the natural powers of tissue to resist external influences to which they are frequently and unavoidably subjected. Thus, after injuries of the spine, sloughing of the paralyzed parts takes place by influences almost imperceptible, and which would never have taken place in a state of health. Carbuncle, a disease in which inflammation enacts such a prominent part, appears to be frequently associated with diabetes, which there are great reasons for believing to be an affection of the nervous system. Some very interesting experiments conducted by Dr. Meissner seem to show further, that certain nerve-fibres exercise a peculiar trophic function, and that lesions of such fibres may produce immediate changes in the parts supplied.

Now, if I am correct in my diagnosis, that there was first a concussion of the solar plexus (and when I first saw my patient he was suffering greatly from shock), followed by inflammation, we can readily see how at first, from sensation travelling to the splanchnic nerve, we could have the inhibitory action of this nerve upon the intestines, producing symptoms of intestinal obstruction, etc., shown by stercoraceous vomiting; and how under the influence of inflammation, the venous blood filling the capillaries and stimulation of the splanchnic continuing, increased peristalsis took place, as exemplified by the colicky pains, etc.; and as greater stimulation was brought to bear upon this nerve, spasmodic contraction of the musculature of the gut occurred, shown in the knotting of the bowels, seen and felt through the abdominal wall at various times. Now, after a given length of time, the conditions remaining as stated, by continual stimulus, intestinal paresis occurred. Complete paralysis first affected the lower part of the small intestines, which through inflammatory conditions resulted in sloughing of the ileum, producing the three openings above described, the formation of a fistulous tract, and an external opening in the hypogastric region, much in the same way as carbuncle makes its appearance in diabetes. And that, finally, complete paralysis of the whole intestinal canal supervened, as revealed in the distended conditions produced by intestinal gases, and further by scybalous masses in the large intestines, the paralyzed gut being unable to evacuate itself.

CLINICAL LECTURES.

ŒSOPHAGEAL DIVERTICULUM; GASTROSTOMY FOR ITS RELIEF.

CLINICAL LECTURE DELIVERED AT THE BUFFALO GENERAL HOSPITAL.

MEDICAL ASPECTS BY CHARLES G. STOCKTON, M.D.,

Professor of the Principles and Practice of Medicine in the Medical Department of the University of Buffalo; Physician to the Buffalo General Hospital.

SURGICAL TREATMENT BY ROSWELL PARK, M.D.,

Professor of the Principles and Practice of Surgery and Clinical Surgery, University of Buffalo; Surgeon to the Buffalo General Hospital.

GENTLEMEN,—This is a patient who first visited Dr. Park three years ago, when the diagnosis of diverticulum of the œsophagus was made. The history of the case is, in brief, that for some ten years the patient has suffered from difficulty in swallowing. He first noticed the trouble at the supper-table, when, as he expresses his sensation, "the solid food seemed to

clog up," although he could wash it down with tea. He thought that the trouble was perhaps due to eating too rapidly, and paid little attention to it. After a time this feeling, as of dried food sticking in the œsophagus, could not be relieved by washing down liquids. More recently the substances swallowed came back directly afterwards, sweet and unchanged, apparently without having reached the stomach at all. Or they sometimes have remained an hour or so and then have been discharged; but usually they have been regurgitated immediately after eating.

On considering the condition found at the lower end of the œsophagus, this case will suggest to you either a constriction at the cardia or low in the œsophagus, or a diverticulum, or it may be a combination of stenosis and diverticulum. Naturally, with such conditions to be differentiated, it would suggest itself to pass a bougie or stomach-tube and note if it met here and there points of narrowing, and whether it would subsequently pass through these narrow points into the stomach. Some two weeks ago I passed a full-sized stomach-tube (No. 13) without the slightest difficulty to a point twenty inches from the incisor teeth, and there it stopped short, not gradually, as if the tube were curving over the wall of the stomach, but with immediate resistance to its further passage. It could not be turned in any direction. By making firm pressure I could double the tube on itself. The tube was then used as a siphon, and on introducing water through it I found that the cavity into which the tube had entered was easily washed out, and that there was brought away the food which had been taken some time before. The cavity was evacuated after the manner of emptying the stomach. Moreover, the resemblance to lavage of the stomach was increased by an apparent contraction of the sac over the end of the tube, for at some moments following siphonage the stream returned with violence, and it seemed to me that I must have inserted the tube into the stomach, for it did not seem possible that a mere sacculation could have the power of contracting on its contents. Nevertheless, the sac was small, judging from the quantity of fluid that it contained, and the tube did not move about freely. The diluted food which was brought away by the tube showed no evidence of having been in the stomach; it was not at all sour; there was no indication of the various forms of fermentation which sometimes occur in the stomach; there was not the odor of stomach contents; there was no hydrochloric acid present. Auscultation showed that the tube had reached the level of the cardia, and gurgling could be heard distinctly on the left side, just at the free border of the ribs, as the fluid passed in and out of the end of the tube.

The question naturally arises, Whence does the diverticulum spring? Is it from the œsophagus, or is it from the cardiac end of the stomach? While I am not prepared to answer this question positively, the evidence of the examination is fairly satisfactory. The tube passed not more than twenty inches from the teeth. In the normal stomach the tube passes to a point twenty-two inches from the teeth easily before the best reflow is ob-

tained. Here I could get a reflow at eighteen inches, and the tube would not go beyond twenty inches. It seems to me that if this were a pouch of the stomach one would at least be able to pass the tube to a distance of twenty-two inches, for I could not expect a diverticulum of the stomach to be higher than the lower border of that organ. Moreover, the sac is small and is situated a little to the left of the median line, above and to the left of the extreme upper and left boundary of the stomach, and it has none of the secreting function of the stomach. It is altogether probable, therefore, that this diverticulum springs from the lower end of the œsophagus.

I am satisfied that we have to deal with something apart from stenosis of the œsophagus, since the patient has been able to nourish himself by his stomach sufficiently to keep alive during all these years. Aside from his emaciation he has a good appearance. He does not present the cachexia of malignant disease, which is a frequent cause of obstruction of the œsophagus. There is no history of syphilis, abscess, or inflammation about the lower end of the œsophagus. The patient has no recollection of any traumatism, such as the swallowing of scalding liquids, of corrosive poisons, or of hard and sharp-cornered solid substances, which might give rise to lesion of the œsophageal wall.

My impression is that food passes down into the stomach after it has run over, so to speak, from the diverticulum. At times it is difficult for food to enter the stomach, and this is probably because when the diverticulum becomes filled it presses on the cardia or on the œsophagus just above in such a way as to produce an obstruction. At other times the food passes down quite readily, and undoubtedly the sac itself at times discharges its contents into the stomach to some extent. Before telling you what I advise this man to do, I must try to answer this question which has arisen in my own mind, and which, doubtless, has occurred to you,—namely, how can we account for the expulsive force which the sac seems to exercise? It is possible to explain the expulsion of fluid through the tube by the violent contraction of the diaphragm, assisted by the abdominal muscles. I am inclined to think that this is the proper explanation, for I do not think that the contractile power lies in the walls of the sac itself. A case of this kind is necessarily shrouded somewhat in mystery, and, partly for the sake of throwing light on the patient's condition, partly to improve his nutrition, I have advised him to have a gastric fistula established. The man has been feeding himself as well as he can; he has taken the best possible care of himself, and he has had good medical care for some time, but his health is gradually failing, and he is liable to contract some ordinary intercurrent illness which he might not be able to withstand. A gastric fistula would, I believe, provide the means for supplying him with abundant nutriment, and enable him to regain flesh and strength and resistance against the inroads of disease to which his advancing age will make him more and more liable.

On passing the tube this morning I get an entirely different sensation

from that which I have described to you. The tube passes farther by two or three inches than it did at my examination two weeks ago. On trying lavage, from the large quantity of water which is retained and from the still greater quantity which is siphoned away mixed with particles of food, I am satisfied that the tube has reached the stomach. A chemical test of the food and liquid removed shows the presence of hydrochloric acid, and the food has plainly undergone partial digestion. On withdrawing the tube the patient vomits material which, from its odor, appearance, and reaction, evidently comes from the stomach. On passing the tube a second time I feel sure that it enters the diverticulum as it did two weeks ago. The tube has stopped abruptly at twenty inches from the teeth, and it will go no farther, although, as you see, I can make it double on itself. The reaction of the contents brought out through the tube this time is neutral. I think from these examinations we have demonstrated, as plainly as if we could see the exact condition of affairs, that there are two sacs into which the tube has passed, one the stomach, the other the diverticulum from the œsophagus above the stomach and lacking in digestive secretion.

Surgical Clinic.—[Continuance of same case by Dr. Park.] With this case you have already become acquainted. I saw the patient about three years ago, and at that time made a diagnosis of œsophageal diverticulum. The patient at that time had consulted no one else than myself, and I could give him no advice to benefit him materially, but I spoke then of some such measure as I propose to carry out this morning. Later he consulted Professor Joseph D. Bryant, of New York, who, without knowing my diagnosis, made a similar one, and could offer no other means of relief than that which I had suggested. Since then the patient has been at home, getting along as well as he could, but gradually growing weaker and weaker, and now he has returned to Buffalo for treatment. The signs and clinical features of the case I suppose Professor Stockton has already given you this morning. I want to say to you a few words regarding the pathological anatomy and etiology of this condition before beginning the operation which has been decided upon. Œsophageal diverticula are offshoots, small or large, from the œsophageal tube. They may be long and narrow, or broad and short. They may hold but a few drops, or in rare cases they may have a capacity of several ounces. We may have œsophageal diverticula from three distinct causes. First of all, they may be congenital anomalies, and such congenital alterations may occur anywhere from the upper to the lower end of the tube. Of the acquired forms we make two classes,—namely, the *dilatation* form and the *traction* form. These are brought about in two very different ways, but the result is about the same. You know I have spoken occasionally about sacculation of the bladder as a result of hernia of the mucous membrane into some of the meshes of the other structures of the bladder wall, the result of which is a pocketing at some point or other of the bladder; and this condition corresponds very closely to one which is much less frequent and, therefore, much less known

in the œsophagus, and that is the dilatation form of diverticulum, which is nearly always limited to the upper portion of this tube. Herniæ of the œsophageal mucous membrane almost always occur through the fibres of the inferior constrictor of the pharynx and seldom below the lower border of this muscle. They are brought about in two or three different ways. They may come from the presence of some foreign body, like a piece of nutshell or sharp fragment of oyster-shell, glass, or bone, which becomes impacted at some point high up in the œsophageal wall, and, remaining there, sets up an irritation and usually a suppurative inflammation. There is thus formed about the foreign body a little pocket in which it lodges, and in this pocket more and more material which should pass down collects and putrefies and becomes more and more irritating, and thus the pocket, which in the beginning was only large enough to hold a grain of wheat, may in the course of months or years reach the capacity of an ounce or more. It is possible that such a pocket may be located where it can be felt with the finger, or possibly even seen on careful examination with a good light. As a rule, however, the sacculation cannot be found so readily; but there will be such complaint of œsophageal distress and dysphagia as to lead to exploration of the tube with a bougie, when, on attempting to pass the instrument down, it is likely to catch in the pocket and be checked only a few inches from the teeth; this would be a sign that we have to deal with a diverticulum of the œsophagus. We must, however, distinguish between the stoppage of an instrument by a diverticulum and by a stricture. Unlike a stricture, a diverticulum is more likely to offer obstruction to the passage of a small instrument, and it may be possible, by leaving *in situ* the bougie that has become entangled and passing another beside it, as we sometimes do in urethral exploration, to demonstrate the patency of the œsophagus.

The other variety of œsophageal diverticulum is known as the *traction* form, and is brought about in an entirely different way. A bronchial lymph-node (miscalled a bronchial "gland") becomes inflamed; probably as the result of a tubercular deposit it enlarges; and, just as such nodes in the groin or neck will contract adhesions to surrounding tissues, so these bronchial nodes form adhesions, and, besides other structures, they may grow firmly to and involve the œsophageal wall. The location of the bronchial nodes is at about the level of the bifurcation of the trachea, and it is at this level that we meet most commonly with traction diverticula of the œsophagus. At this point, such an inflamed mass growing fast to the œsophageal wall may cause an obstruction, temporary or permanent; but if the usual programme is followed, after the subsidence of a more or less severe inflammatory disturbance, an atrophic process sets in, or the mass becomes caseated, and then it contracts in all its dimensions, and, being now firmly attached to the wall, it will draw away the tube itself at that point and will make a sac at one side. So soon as there is any sacculation there is an opportunity for the retention of material, which soon putrefies and

becomes irritating and causes enlargement of the pocket, just as in the case of the dilatation form of diverticulum. This disastrous process, once started, may extend almost indefinitely, and it may be possible for a little divergence from the original calibre of the œsophagus to amount in time to a sac which shall contain half a pint. The more it contains, the more disastrous the condition becomes. It is not necessary for me to discuss with you the clinical signs and symptoms of this condition. It is a rare affection. Through the courtesy of Dr. E. H. Long, I was enabled some time ago to show in clinic a much younger man with œsophageal diverticulum, who has since improved somewhat, but who is compelled to confine himself almost entirely to a liquid diet.

I want you to realize that, no matter at what level in the œsophagus, or, without limiting ourselves to the œsophagus, in whatever closed tubular passage of the body, whether œsophagus, intestine, or urethra, this process of sacculation is once started, the lesion manifests vicious tendencies. The sacculation once begun increases, and does not tend towards spontaneous recovery.

With regard to this patient, there is every reason to believe that the trouble is low down in the œsophagus, and I grant you that I am quite in the dark as to its original nature. I do not find anything in the history to account for a traction diverticulum at the lower end of the œsophagus, and I am inclined to think that we have to deal with what was originally a congenital anomaly, but which has increased in extent of late years. Unless the conditions are very different from what I expect, on account of the morning's examination, I do not think we shall, during the operation, see the diverticulum at all.

I shall make a gastrostomy this morning,—*i.e.*, a more or less permanent opening into the stomach for feeding purposes. Nearly everything that the patient takes now apparently goes into the diverticulum instead of into his stomach, and since the sac is not fitted up with gastric properties it cannot digest the food. I want to provide him with an opening directly into the stomach, so that the food shall go, as the politicians say, "where it will do the most good." If we can get the food directly into the stomach and not into the sac, the latter may, in time, contract and finally become nearly obliterated, and then the patient may perhaps be able to return to the old way of taking food. There is no obstruction to the passage of food through the œsophagus. I can get a full-sized bougie into the stomach. The operation, therefore, is intended solely to direct the food into the proper cavity where digestion can take place. There is every reason to believe that the patient will recover entirely from the operation, and can soon go about his usual business, handicapped only by the inconvenience of a gastric fistula.

The operation is done at two sittings, or, as the French say, *à deux temps*. The small triangular area where the stomach is not covered by other viscera, and is, therefore, accessible to the surgeon, is bounded on the

patient's right by the left lobe of the liver, on the left by the costal cartilages, and below by an imaginary line drawn between the tips of the tenth costal cartilages. It is into this triangular space that we perforate, the incision being parallel to the left costal cartilages. I purpose doing the operation under cocaine, as I did a similar one a few weeks ago, for the reason that I wish to avoid the violent vomiting which a general anæsthetic is apt to excite. So far as I know, the first laparotomy ever made under cocaine anæsthesia was done by myself in this clinic-room, and was done for the same general purpose as this operation and the one which you witnessed a few weeks ago,—namely, for gastrostomy,—but in the case of a woman who had cancer of the œsophagus. The operation was perfectly successful, and I have since used cocaine as an anæsthetic in many other abdominal operations, including those for the radical cure of inguinal hernia.

After making the incision through the abdominal wall we next find the stomach, and hold it up and into the wound by a pin thrust through the organ until it can be fastened more securely by sutures to the parietal peritoneum and superjacent structures. The peritoneal surfaces soon contract adhesions to each other, and after twenty-four hours the stomach can be opened without danger of leakage of its contents into the peritoneal cavity. If this were a desperate case and the man were actually starving, we could make the opening into the stomach to-day, but as there is no urgency we will leave the completion of the operation till to-morrow or the next day.

Before making the incision, I map out the lower border of the liver by percussion and mark it on the skin. I then cut carefully through the skin and adipose tissue parallel to the left costo-chondral arch and about an inch away from it. The fibres of the external oblique are cut almost at right angles, while the knife goes nearly parallel with the fibres of the internal oblique and diagonally across those of the transversalis. The patient makes some complaint of pain at this stage of the operation, and I accordingly give him another syringeful of cocaine solution, dividing it in four punctures. Before dividing the peritoneum I have all the hemorrhage checked as far as is possible. The peritoneum is picked up by the tissue-forceps and snipped open with scissors. I find the left lobe of the liver lying lower than usual, and it is necessary to hold it away with a metal retractor before I can bring the stomach up to the abdominal wound. It is well to make sure that the hollow viscus presenting is the stomach and not the colon. The stomach in its contracted condition resembles the colon very much; but I can follow it down with my fingers to the ring of the pylorus, and its relation to the liver can also be distinctly seen. Introducing the index finger, I explore gently to discover, if possible, the secret of the diverticulum, but am unable to do so. With the finger thus moving about among the viscera the patient complains of ill-defined but positive abdominal pain, his only complaint, since he has scarcely felt the incision.

Seizing the stomach with the forceps, I bring it up into the opening and sew it with fine silk first to the parietal peritoneum and then bring the suture through the skin. It is held in place, meanwhile, by the forceps, aided by a long pin thrust through its walls. The suturing of the stomach has to be performed with considerable care, in order to secure perfect approximation and to avoid leakage into the abdominal cavity.

For the next forty-eight hours the patient will be fed by the rectum, in order that there may be no opportunity for any disturbance of the stomach.

Four days later.—The operation was completed on the second day after the exposure of the stomach, by simply puncturing the stomach-wall and introducing a plug of gauze. After twenty-four hours feeding by the tube was begun. The test of the advisability of the operation had already occurred. Since the man was fed yesterday (three days after the first sitting, one day after the completion of the operation) he has not regurgitated a particle of food. The attempt has been made to have him vomit, and he has not been able to do so. The resident surgeon tells me that our patient is the happiest man in the hospital to-day. The operation has been successful, and the indication for which it was performed has been completely met. He will have to stay here only two or three days longer, or until his apparatus for the gastric fistula arrives, and then he can go home in a condition to ingest and digest food as he has not been able to do in years.

Eighteen months later.—The patient has been very recently heard from. He depends solely on his gastric fistula as a means of ingesting food; is perfectly well, quite strong, and almost robust in appearance.

SUSCEPTIBILITY AND IMMUNITY.

LECTURE DELIVERED AT THE UNIVERSITY OF PENNSYLVANIA.

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ONE of the most astonishing facts observed in comparative physiology and pathology is the resistance which certain animals and classes of animals, not differing very much from other animals, but often differing very widely among themselves, show to the invasion of their bodies by the germs of disease.

Thus, man suffers from typhoid fever, cholera, and other infectious diseases which are never observed in the domestic animals; cattle are subject to a pleuro-pneumonia which does not affect their attendants; man, the cow, and the guinea-pig are peculiarly susceptible to tuberculosis, which the cat, dog, and horse resist; yellow fever is a highly contagious, infectious disease,

which is almost certain to attack all new arrivals of the human species, when epidemic, but which rarely, if ever, attacks animals.

The popular mind accepts a statement of such facts as these without any other explanation than that the animals are different. The more the professional man contemplates these facts, however, the more complicated the matter becomes; for, while it might be admitted that a difference in the bodily temperature and chemistry might explain why a frog will resist anthrax, which readily kills a common rat, it will not explain why a white rat, whose chemistry must be almost if not quite identical with that of the house rat, can successfully combat the disease. Nor is this all. The fact that one attack of yellow fever, of typhoid fever, or of scarlet fever renders a second attack almost impossible is not the less interesting because of its every-day observation. The mouse which has recovered from tetanus will not take tetanus again, and most interesting and extraordinary is the fact that a few drops of blood from the recovered mouse, injected into another mouse, will protect it from future attacks of tetanus.

The condition in which the body of an animal resists the entrance of disease-producing germs, or, having been compelled to allow them to enter, resists their growth and pathogenesis, is called *immunity*. The resistance so manifested is a distinct, potential, vital phenomenon.

The opposite condition, in which instead of resistance there is a passive inertia which allows the disease-producing organisms to develop without opposition, is called *susceptibility*. Susceptibility is accordingly seen to be nothing more than the absence of immunity.

Immunity is either natural or acquired.

I. Natural Immunity.—By this term is meant the natural and constant resistance which certain healthy animals exhibit towards certain diseases which affect other kinds.

The white rat is peculiar in resisting anthrax. It is almost impossible to develop anthrax in a healthy white rat, but Roger found that such an animal would easily succumb to the disease if compelled to turn a revolving wheel until exhausted. Susceptibility which follows such an exhaustion of the vital powers cannot be regarded as other than accidental, and makes no exception to the statement that the white rat is immune from anthrax. Animals such as man, sheep, cows, rabbits, and white mice are susceptible to anthrax, while birds and reptiles are generally immune. The great difference in the morphology between mammals and birds and reptiles, together with the fact that their temperature, blood, and tissues all differ, makes this immunity reasonably intelligible. Morphological differences, however, will not suffice to explain all cases, for the Caucasian nearly always succumbs to yellow fever, while the negro is rarely affected; and scarlatina, which is one of our commonest and

most dangerous diseases of childhood, is said to be unknown among the Japanese. Nor is this all, for, close as is their resemblance in all respects except color, the house-mouse, field-mouse, and white mouse differ very much in their susceptibility to various diseases.

II. ACQUIRED IMMUNITY is resistance which is the result of accidental circumstances. Most of us have suffered from rubeola, scarlatina, and varicella, and in consequence of the attack are now immune. One attack of yellow fever is always a complete guard against another. Typhoid fever is rarely followed by a second attack.

Sometimes the immunity is experimentally produced, as when by vaccination we produce the vaccine disease and afterwards resist variola. Acquired immunity is a little less complete and not so permanent as natural immunity, for in the latter it is only when the functions of the individual are disturbed or its vitality depressed that the resistance is lost, while in the former time seems to lessen the power of resistance, so that rubeola and scarlatina may return in a few months or years, and for complete protection vaccination may need to be done as often as every seven years.

Immunity may be produced experimentally in numerous ways.

a. *By operations upon the animals.* The house-mouse and white mouse are susceptible to tetanus. If from a convalescent or a tetanous mouse a drop or two of blood be injected into another mouse, it is said to render it immune.

b. *By manipulation of the specific organism.* Pathogenic bacteria are possessed of powers which are described as *virulent*, and which generally weaken very much when grown upon artificial media. This condition of weakened virulence is called *attenuation*, and when desired may be artificially produced by—

1. Cultivating the bacteria upon media containing 1–5000 to 1–2000 of bichromate of potassium or one per cent. of carbolic acid.
2. Cultivating them under a pressure of eight atmospheres.
3. Cultivating them, and exposing the cultures to sunlight for a short time.
4. By exposing the cultures for ten minutes to a temperature of 55° C. After subjection to manipulations such as these, the most virulent of the bacteria will often be so attenuated as to cause little or no disturbance when inoculated into susceptible animals.

In passing it is well to call attention to a curious result which very frequently follows the introduction of attenuated micro-organisms into susceptible animals,—viz., the production of immunity to the virulent form of the organism.

c. *By combining various micro-organisms.* Pawlowski found that

when rabbits, which are very susceptible to anthrax, are simultaneously injected with the bacillus anthracis and the bacillus prodigiosus, which is harmless, they recovered from the anthrax, as if the harmless microbe possessed the power of neutralizing the poison of the other.

Immunity may be destroyed in numerous ways.

a. *By variation from the normal temperature* of the animal under observation. Pasteur observed that chickens would not take anthrax, and suspected that it might be due to their high body temperature. After inoculation he plunged the birds into a cold bath, reduced their temperature, and succeeded in destroying their immunity. The experiment was a success, but the reasoning seems to have been faulty, as the sparrow, with a temperature equally high, readily falls a victim to anthrax without a cold bath.

In various specific fevers the temperature curve is interesting, rising steadily as the bacteria grow vigorously until a maximum is reached, then falling abruptly at the same time that the activity of the micro-organisms begins to wane. Whether these activities cease because the high temperature attained is prejudicial to their growth, or because their own products injure them, is still a question. Probably the latter view is the correct one.

b. *By altering the chemistry of the blood* by changing the diet or by hypodermic injection. Leo found that when white rabbits were injected with phloridzin, and also that when they were fed upon phloridzin, an artificial glycosuria resulted which destroyed their natural resistance to anthrax.

Platania succeeded in producing anthrax in dogs, frogs, and pigeons, naturally immune, by subjecting them to the influence of curare, chloral, and alcohol.

c. *Diminishing the strength of the animal.* Roger, by compelling white rats to turn a revolving wheel until exhausted, destroyed their immunity to anthrax.

d. *Removing the spleen.* Bardach has shown how greatly the chances of recovery from specific diseases are lessened by the removal of the spleen.

e. *By combining different species of bacteria,* either of which, when injected alone, would be harmless or of slight effect. Roger found that when animals immune from malignant œdema were simultaneously injected with one to two cubic centimetres of a culture of bacillus prodigiosus and the bacillus of malignant œdema, they would contract the disease.

Sometimes an apparent immunity depends upon the attenuation of the culture used for inoculation, and the erroneous results to which such a

mistake would lead are obvious. Should a culture become attenuated its virulence may be increased by inoculating it into the most susceptible animals, then from this to a less susceptible, then to an immune animal. The virulence of anthrax is increased by inoculations into pigeons, and also by cultivation in an infusion of the tissues of an animal similar to the one to be inoculated.

It must be understood that the term immunity is a relative one, and that, while a white rat is immune against anthrax in amounts sufficiently large to kill a rabbit, it is perhaps not immune against a quantity sufficient to kill an elephant.

It is not to be expected that such intricate phenomena as these which have been mentioned could be observed and suffered to go unexplained. Alas! we have explanations, but they are as intricate as the phenomena, and, though each may possess its grain of truth, not one will statisfy the demands of the thoughtful student. In brief review, these theories are the following:

1. The Exhaustion Theory. This was advanced by Pasteur in 1880, and teaches that by its growth in the body the micro-organism uses up some substance essential to its life, and that when this substance is gone the microbe must die. The removal of this substance, if complete, will give permanent immunity.

   In his "Manual of Bacteriology," Sternberg gives a very just criticism upon this theory, because, were it true, we must have within us a material of small-pox, a material of measles, a material of scarlet fever, etc., each of which must be exhausted by its appropriate organism. It would necessitate an almost inconceivably complex body chemistry, and a rather stable condition of the same.
2. The Retention Theory. In the same year Chauveau suggested that the growth of the bacteria in the body might originate some substance prejudicial to their further and future development. There seems to be a large kernel of truth in this, but were it always the case we would have added to our blood a material of small-pox, a material of measles, a material of scarlet fever, etc., so that we would become saturated with the excrementitious products of the bacteria, instead of having so many substances subtracted from our chemistry.
3. Phagocytosis. In 1881 Carl Roser suggested a relation between immunity and the already familiar phenomenon of phagocytosis. Sternberg in this country, and Koch in Germany, observed the same thing, but little real attention was paid to the subject until 1884, when Metschnikoff appeared with his careful observations upon the daphnia, as the great champion of the theory which is now known as "Metschnikoff's Theory of Phagocytosis."

   Phagocytosis is the swallowing or incorporating of foreign parti-

cles by certain of the cells which are called *phagocytes*. This activity of the cells towards inert particles had been observed by Virchow as early as 1840, and towards living bacteria by Koch in 1878, but was not carefully studied until Metschnikoff created his theory in 1884. By Metschnikoff the phagocytes are divided into *fixed phagocytes*, comprising the fixed connective-tissue cells, endothelium, etc., and the *free phagocytes*. The terms phagocyte and leucocyte are not to be regarded as synonymous in this connection. "Of the leucocytes there are several varieties, one of which is immobile, and never takes up bacteria. This is the *lymphocyte*, characterized by its small size, its single large nucleus, and small amount of surrounding protoplasm. The two remaining phagocytic forms are, first, the large unicellular leucocyte, whose prominent nucleus is at times lobed or reniform, which stains well with the aniline dyes and possesses much protoplasm and active amœboid movements, —the *macrophage*,—and, second, the *microphage*, a small form, also staining well, but either multinuclear or with one nucleus in process of breaking up."

It is obvious that only those cells are phagocytes which possess amœboid movement. When an amœba, in a liquid containing numerous diatoms and bacteria, is watched through the microscope, an interesting phenomenon is observed. The amœba will approach one of the vegetable cells, even though it may be at a distance, will apprehend it and surround it, and within the animal cell the vegetable cell will be digested and assimilated. The amœba has no eyes, no nose, no volition, and, so far as we can determine, no nervous apparatus which gives it tactile sense; yet it will approach the particle fitted for its use and swallow it. The attraction which draws the animal cell to the vegetable cell in this illustration is denominated *chemotaxis*.

Chemotaxis is the exhibition of an attractive force between amœboid cells and food particles. This attractive force, when operating so as to draw the amœba to the particle it will use is further named *positive chemotaxis* in order to distinguish it from a repulsive force sometimes exerted, causing the amœboid cells to fly from an enemy, as it were, and which is called *negative chemotaxis*.

The force which operates and guides the amœba in its movements is exactly the same as that which governs the movement of the phagocytic cells of the human body, and observation of these phenomena is not difficult. If a small capillary tube be filled with sweet oil and placed beneath the skin, only a short time need pass before it will be found full of leucocytes,—positive chemotaxis. If, instead of sweeet oil, oil of turpentine be used, not a leucocyte will be found,—negative chemotaxis, or, more correctly, no chemotaxis at all.

Phagocytosis is almost universal in the micro-organismal diseases at some stage or another. If the blood of a patient suffering from relapsing fever be studied beneath the microscope it will be found to contain numerous actively mobile spirilli, all free in the liquid portion of the blood. As soon as the apyretic stage comes on not a single free spirillum can be found. Every one is seen to be enclosed in the leucocytes.

At the edge of an erysipelatous patch a most active warfare is being waged between the streptococci and the cells. Near the centre of the patch there are many free streptococci and a few cells. Nearer the margin there are free streptococci and also a great many streptococci enclosed in cells (leucocytes) which are, for the most part, dead. Further out we find hosts of active living cells engaged in eating up the enemies as fast as they can. The phagocytologists tell us that at the centre the bacteria are fortified, actively growing, and virulent. In the next zone, the leucocytes which have feasted upon the bacteria are poisoned by them. Outside the cells which are more powerful and which are constantly being reinforced are waging successful warfare against the streptococci. In this manner the battle continues, the cells now being obliged to yield to the bacteria and the patch spreading, while the cells subsequently reinforce and destroy the bacteria so that the disease comes to a termination. Metschnikoff introduced fragments of tissue from animals dead of anthrax under the skin of the back of a frog, and found it surrounded and penetrated by leucocytes containing many of the bacilli.

It need scarcely be pointed out that a loop-hole of doubt exists in all these cases. The bacteria may have been dead before the cells ingested them, and the digestion and destruction which has gone on in their interiors has been the digestion of dead bacteria. In the relapsing-fever illustration we may take exceptions, and state that the apyrexia may have marked the death of the spirilli, which were taken up by the leucocytes only when dead. In the erysipelas illustration, the streptococci remote from the centre of the lesion may have met from the body juices or some other cause a more speedy death than that from the digestive juices of the leucocyte.

Metschnikoff, however, is prepared to show us that the leucocytes do take up living pathogenic organisms. He succeeded in isolating two leucocytes, each containing an anthrax spore. These he conveyed to artificial culture media and watched. The new environment being better adapted to the growth of the spore than for the nourishment of the leucocyte, the latter died, and the spore developed under his eyes into a healthy bacillus, showing that the leucocytes do take up virulent living organisms. Seeing that the animal cells do take up bacteria, and seeing that the amœba can ingest and digest threads of leptothrix ten times as long as itself, we need only put two and two together to see that Metschnikoff's theory rests upon a very substantial foundation. The more virulent the bacteria are the less ready the leucocytes are to seize them. The more immune the animal is the greater is the affinity of the leucocyte for the bacteria.

The organisms which are seized upon by the leucocytes do not remain in

the blood, but are collected in the spleen and lymphatic glands; and not the least important fact in favor of phagocytosis is that observed by Bardach,—that excision of the spleen diminished the resistance to infectious disease.

Quinine also furnishes a therapeutic support to the theory. It is known that quinine increases the destruction of leucocytes. Woodhead inoculated a number of rabbits with anthrax, giving quinine to some of them. Those which had received the drug died earliest, a fact probably caused by the destruction of part of the phagocytic army.

Ruffer found that the "phagocytes evince a distinct selective tendency between various kinds of organisms. They will leave the bacillus of tetanus in order to seize upon the bacillus prodigiosus if simultaneously introduced; also the streptococci in diphtheria for the Klebs-Löffler bacilli. This is illustrated in the diphtheritic membrane, where at the surface one can see leucocytes taking in numbers of the bacilli but leaving the streptococci almost untouched, with the immediate result that streptococci are often found in the deeper parts of the membrane, and with the remote result that secondary abscesses occurring in the course of diphtheria are never due to the bacillus of diphtheria but to some other organism."

In order to satisfy sceptical minds of the truth of the destruction of micro-organisms by phagocytes, Metschnikoff made a special study of tuberculosis. Observing that it seemed true of all bacteria that the more perfect they were the more sudden their death for examination purposes, and the more virulent their properties the more brilliantly they take the aniline dyes, he made use of this to show the action of the cells upon the tubercle bacilli. A species of marmot called the *zeisel-maus* is almost entirely immune to tuberculosis, and when a culture of tubercle bacilli is injected into its abdominal cavity the bacilli are taken up by the epithelioid cells and later appear enclosed in giant-cells. Metschnikoff shows that the bacilli in the epithelioid cells and those few lying free in the tissue stain well, but that those enclosed in the giant cells are surrounded by a yellowish, scarcely tingeable halo, which he describes as a cheesy degeneration of the bacillus, caused by the action of the cell juices upon it, and concludes from this that the giant-cells of tuberculosis are enormous phagocytes. This is an extremely interesting and important contribution to phagocytosis, the only misfortune about it being the fact that Baumgarten and Weigert were unable to substantiate it in their researches.

Wyssokowitsch found that saprophytic micro-organisms are quickly eliminated from the blood when injected into the circulation. This elimination was not by excretion by organs nor by destruction in the streaming blood, but by the collection of the organisms in the small capillaries where the blood stream is slow, and where the micro-organisms are taken up by the endothelial cells. Wyssokowitsch found them most numerous in the liver, spleen, and bone-marrow, and found that in these situations they were destroyed in a short time—saprophytic in a few hours, pathogenic in from

twenty-four to forty-eight hours. Living spores of bacillus subtilis remained as living entities in the spleen for three months.

Some new observations, however, inaugurated a new epoch in research and a new theory of immunity.

4. The Humoral Theory.—It was observed that if a few anthrax bacilli were introduced into a few drops of rabbit's blood they were instantly killed. This observation was one of immense importance, and from it and similar observations Buchner deduced the principles of his theory that the destruction of pathogenic bacteria in the body is due to the bactericidal action of the blood plasma, not to phagocytosis, which in their eyes amounts to nothing more than the burial of the dead bacteria in "cellular charnel-houses." The experiments of Buchner and his followers have shown that freshly-drawn blood, blood plasma, defibrinated blood, aqueous humor, etc., possess marked destructive influence upon the organisms brought in contact with them, a property which was easily destroyed by heat.

The apparent paradox of rapid multiplication of anthrax bacilli in the rabbit's blood, enclosed in the rabbit's body, and the reversed action in the test-tube caused immediate and prolonged opposition. Each side of the question seemed well supported. The phagocytists, however, showed that bacteria were often injured and their vegetative powers destroyed by sudden changes from one culture medium to another, this being proved by Haffekine. In experimenting with aqueous humor, Metschnikoff has shown that its germicidal actions are largely imaginary, and due to the dispersion of the organisms in a large amount of watery liquid. When the micro-organisms are introduced into it in such a manner as to remain together they grow well. If the tube be skaken they die. Again, Adami has shown that when blood is shed there is almost always a pronounced destruction of corpuscles, and suggests that the anti-biotic property of the shed blood may be due to solution of the substances formerly in the protoplasm of the leucocytes.

Wyssokowitsch surely argued against humoral germicide when he showed that the spores of bacillus subtilis could reside in the spleen for three months uninjured, just as much as against phagocytism.

In defending their theory the humoralists experimented by placing micro-organisms, enclosed in little bags of pith, collodium, etc., beneath the skin. These bags would allow the fluids of the body free access to the bacteria, but would shut out the phagocytes. By these means Hueppe and Lubarsch have repeatedly seen the bacteria grow well, while Baumgarten has failed to find it so. Such experiments are by no means conclusive, for we should remember that the operation necessary and the presence of the foreign body in which

the bacteria are encased produce an inflammatory transudate which may have very different properties from the normal juices.

How much of the immunity which animals enjoy depends upon the anti-bactericidal action of their body juices must remain an open question. Certain is it that in some cases the germicidal action of the blood is unquestionable.

The greatest stumbling-block in both the phagocytic and humoral theories remains to be mentiond. How is acquired immunity to be explained? We might conceive the phagocytes or the blood plasma capable of destroying the parasites, but how shall this make clear to us why after an attack of a disease or how after protective vaccination these phagocytes or this plasma acquire the formidable antibiotic properties which shall in the future protect the individual previously susceptible? Both schools attempt a fallacious explanation which is no explanation at all. They tell us that after the micro-organisms have been met and defeated by the phagocytes these cells develop a peculiar appetite for germs of this peculiar kind, and also a peculiar tolerance to their pathological products. The humoralists teach us that, the body having become accustomed to the poison produced by the parasite, it becomes to it a simple saprophyte, easily destroyed by its juices. Both these explanations simply assert that the body becomes tolerant and resists the inroads of the germs, nothing more. Probably because of the necessity for a satisfactory reason for the above phenomena, a new school gradually arose inculcating the

5. THEORY OF DEFENSIVE PROTEIDS, which shows us that the metabolism of bacteria gives rise not only to poisonous substances called *toxines* but also to other substances possessed in part of the property of neutralizing them, called *anti-toxines*. The most extensive researches in this field have been made by Hankin, who finds in the bodies of immune animals proteid substances possessed of distinct properties in relation to bacteria. These proteids had previously been pointed out by Buchner as *alexines*, but Hankin found it more convenient to divide these compounds into certain groups, as follows: Proteid substances which occur naturally in normal animals, and are possessed of the power of destroying either the virulence of bacteria or their products, he calls *sozins*. Similar proteid substances possessed of similar properties, but occurring in animals having acquired immunity, he calls *phylaxins*. Each of these is divided into two classes, so that a sozin possessed of the property of killing bacteria is called a *myco-sozin*, while a sozin which neutralizes bacterial products is called a *toxo-sozin*. In the same way a phylaxin which kills bacteria is called a *myco-phylaxin*, while one which neutralizes their ptomaines is called a *toxo-phylaxin*.

The Klemperers produced immunity against pneumonia which lasted six months, in animals, by the injection of filtered cultures of the pneumococcus. They believe "that the immunity depends on antitoxines, built up in the tissues under the stimulation of the injected fluid; not that this antitoxine was injected with the culture filtrate."

Whatever these immunizing substances are, it sometimes seems that they pass into the secretions. Ehrlich injected into a nursing mother-mouse a few drops of blood from a horse immune against tetanus, and observed that the baby mice became immune through the mother's milk, one of them surviving inoculation by means of a splinter which sufficed to kill a much larger mouse.

The application of the knowledge of these antitoxines, however, does not always bring success with it, and a great disappointment has resulted from an attempted therapy of pneumonia based upon the supposition that the crisis in this disease was due to the neutralization of the pneumotoxine by an antitoxine, and that in consequence, if some of the blood from a convalescent patient were injected into one in the early stages, crisis should result. Experimentation in this line recently, conducted by Dr. William Hughes and Dr. William S. Carter, of our own University, has shown that while in a few cases a crisis resulted, in most cases no effect was produced.

A great attack upon the toxine and antitoxine theory has recently been given by Charrin, Gamaléia, and Selander, whose careful investigations show that the toxines are so little attacked by anti-toxines in the immune animal in septicæmia, caused by the vibrio Metschnikowi, pyocyanic disease, and hog-cholera in the rabbit, that the same quantity of the toxine in solution suffices to kill the protected animal as causes death in the susceptible. This shows that it is the micro-organism itself rather than its products which the animal is able to resist, and again brings us to the starting-point of our discussion with no other positive knowledge of immunity than that *in some way immune animals are able to combat and destroy virulent bacteria, and to annul the influence of their poisonous products.*

REVIEW OF MEDICINE.

MEDICINE.

IN CHARGE OF JOSEPH P. TUNIS, A.B., M.D.,

Assistant Demonstrator of Surgery in the University of Pennsylvania; Surgeon to the Dispensaries of the Presbyterian and of the Methodist Episcopal Hospitals; Visiting Physician to the Children's Dispensary of St. Clement's Hospital and to the Church Home at Angora, Philadelphia.

Absorption and Secretion in the Stomach and their Artificial Stimulation. (*Zeitsch. f. Biol. N. F.*, 19, S. 277.) By Brandl.

This author conducted his experiments by the method first used by Tappeiner; that is, he made a fistula in the neighborhood of the pylorus, and through this drew out the contents of the stomach by means of a compressible rubber ball. The experiments of Tappeiner demonstrated the fact that by increasing the concentration of a watery solution, or by adding thereto a slight amount of alcohol, the rapidity of absorption was increased. Brandl demonstrates that in both cases the irritation and the increased hyperæmia of the mucous membrane are the cause of this increased absorptive power. The following table, in which the percentage of fluid absorbed in two hours' time is comparatively shown, demonstrates the fact most explicitly. The amount of solution used was one hundred and fifty cubic centimetres.

Solution Employed.	Percentage Absorbed in Two Hours.		
	Five-per-cent. Sugar Solution.	Five-per-cent. Pepton Solution.	Three per cent. Sodium Iodide.
Water, pure	2.0	2.7	2.2
Water + 20 per cent. alcohol	9.0	10 7	10.2
Water + 2 per cent. salt	7.0	. .	. .
Water + one-half drop mustard oil	. .	. .	14.0
Water + two drops peppermint	14.0	13.0	. .
Water + 0.4 per cent. white pepper	9.3	. .	. .
Water + 0.15 per cent. hydrochlorate of orexine	38.8	6.9	. .

The alcohol showed its stimulative power in that it was absorbed within the two hours. In opposition to the belief in bitter stomachics, it was shown that, although they produced irritation, they did not produce quick absorption. The emollients calmed the irritation produced by the concentrated solutions and their absorption; for example, of a five-per-cent. solu-

tion of sodium iodide eleven per cent. was absorbed in two hours, while an emulsion of the same only lost 0.3 to 1.6 per cent. in the same time.

The Physiology of Massage as a Treatment for Constipation. (*Wien. Klin. Wochensch.*, 1893, No. 15.) By V. Eltz.

This author is of the opinion that the effect produced is not, as some authors claim, a mechanical one, but has physiological causes. Peristalsis is induced by an over-exertion of the intestinal wall, and this is one of the effects of massage. It also increases the tonicity and activity of the muscular structure, and, through a better circulation, helps to remove chronic conditions. In his *résumé* the author says, (1) The acceptation of the mechanical theory of discharge is unproved and improbable. (2) Chronic enteritis, especially if we consider artificial constipation under this heading, is a relatively frequent cause of constipation. (3) The absorption of a chronic enteritis proves the restoration of muscular tonicity, and the removal of nerve irritation and mechanical hinderances to muscular action. (4) The absorption of an infiltrate signifies the removal of a cause of constant catarrhal exacerbations.

The Elimination of Nitrogenous Substances in Diabetics by means of the Carbohydrates. (*Zeitschr. für Klin. Med.*, Bd. xxii. H. 3.) By H. Leo.

The author describes a series of interesting experiments upon this subject, in which the effect of a carbohydrate diet, known to be free from albumen, was tried upon a series of three normal and nine diabetic patients. A carbohydrate diet was rigidly enforced, and the urine was critically examined hourly before and after the meals, and the quantity and amount of sugar and nitrogenous matter was noted. An increase in the excretion of nitrogenous substance was noted, caused by an increased diuresis. The latter was much increased in the diabetic patients, as also was the excretion of the nitrogen, both being above the normal. This excretion was evidently relative to the diuresis. It was now necessary to learn whether a moderate increase in diuresis by this diet did not show through the fæces the working of the carbohydrates on albumen elimination. These experiments satisfactorily proved that the carbohydrate diet will, in severe cases, though not in extreme ones, increase the excretion of albumen. The amount of carbohydrate diet is to be regulated by the relative amount of sugar and albumen present in proportion to the body weight.

An Addition to our Knowledge concerning Pseudo-leukæmia. (Beitrag zur Kenntniss der Pseudoleukämie. *Deut. Arch. für Klin. Med.*, Band li., Heft 1, pp. 83.) By A. Westphal.

After a careful review of the literature upon this subject up to 1891, the author concludes that the absence of bacteriological and chemical examinations, that are so necessary to a definitive diagnosis, makes these pre-

vious researches have a negative or contrary result. In the twenty-one cases which he has himself studied in the Leipsic clinic, eighteen cases had enlarged glands with the common conditions. In two cases there was caseation, without any tuberculous bacilli being present. In seventeen cases splenic enlargement was found, accompanied in eleven cases by an enlargement of the liver. This enlargement occurred alone in one case. The bone-marrow appeared to be frequently involved. There was nothing characteristic about the blood. In seven cases there was a hemorrhagic diathesis, with two cases of hæmophilia. Six fatal cases were complicated by serous or sero-hæmorrhagic pleuritis. The length of the disease was mostly some years, while in two cases it lasted but ten months. There was fever in thirteen cases, with no other complication of note. The temperature-chart resembled that of typhoid fever, with more slight relapses. The tonsils were in the majority of cases the point of origin. In one case it began in a suppurative otitis media, in another in suppuration in the leg, while there were three cases each of skin disease and chronic diarrhœa.

THERAPEUTICS.

IN CHARGE OF ALEXANDER D. BLACKADER, B.A., M.D.,
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ASSISTED BY
D. I. EVANS, M.D.

The Specific Treatment of Typhoid Fever. (Ueber Specifische Behandlung des Abdominal-typhus. *Deut. Med. Wochenschrift*, 1893, No. 41.) By Dr. Eng. Fraenkel.

The writer in this paper gives his experience in the treatment of fifty-seven cases of typhoid fever by the deep injection into the gluteal region of a solution prepared as follows: Into sterilized thymus bouillon, cultures of typhoid bacilli upon agar were introduced; it was then placed in a thermostat for seventy-two hours at a temperature of 36°–37° C. The bacilli were then removed as far as possible, and the bouillon maintained at a temperature of 63° C. in a water-bath till completely sterilized. It was then ready for use.

The diagnosis having been established and the patient's temperature carefully recorded for several days, the treatment was begun by the injection of one-half cubic centimetre of this prepared bouillon into the gluteal muscle. The injections were repeated at intervals of two days, the amount being gradually increased up to four or five cubic centimetres. In some cases there was a slight elevation of temperature after the first injection, but after the second or third the temperature began to fall. In mild cases the temperature dropped as by crisis after the first few injections; in

seven cases the decline was more gradual. The defervescence was accompanied by profuse perspiration, while the general condition of the patient rapidly improved. If diarrhœa had been a prominent symptom before treatment, it was checked as soon as the temperature began to fall.

In the same magazine there is an account by Dr. Th. Rumpf of the treatment of the same disease by sterilized cultures of the bacillus pyocyaneus prepared similarly as above. The results were very similar but not so rapid as in Professor Fraenkel's cases. Injections were also tried from a culture of streptococcus, but were barren of results.

The Abuse of Alcohol in the Gastro-intestinal Disorders of Infancy. (*Medical News*, October 28, 1893.) By Henry Koplik, M.D.

The author in this article calls attention to the harm liable to arise from the use of alcohol at the outset and during the early stages of gastro-intestinal disease. Its use in altogether too large doses is extremely common, and in many cases produces extreme restlessness, ending in stupor. He questions whether the evils arising from its use at this time do not far outweigh any temporary benefit. He refers to Epstein as also protesting against the use of alcoholic solutions in the early stages of these disorders, calling attention to the marked tendency at this time to alcoholic intoxication, and to the similarity of this intoxication to some of the symptoms of true cholera infantum. Koplik insists that the correct method in the beginning of these disorders is not to stimulate the functions, but to give them complete rest. For the past few years he has altogether avoided the use of alcoholics in the treatment of the acute gastro-intestinal disorders of infancy. In case of failing strength he uses, instead of alcohol, minute doses of sparteine (gr. $\frac{1}{64}$–$\frac{1}{32}$) or of strychnine ($\frac{1}{500}$).

Alumnol in Diseases of the Skin. (*New York Medical Journal*, November 4, 1893.) By William S. Gottheil, M.D.

In alumnol we have a naphthol-sulphonic acid salt of aluminium containinig five per cent. of aluminium and fifteen per cent. of sulphur. It is a light, fine white powder, non-hygroscopic and stable; soluble in water to the extent of forty-five per cent., forming a permanent solution. It is also soluble in glycerin, but only slightly so in alcohol and ether. Alumnol solutions are moderately acid, and precipitate albumen and gelatine, but the precipitate is soluble and redissolves in an excess of the albumen and gelatine. Its antiseptic action is not very marked. There is no danger of any toxic effects resulting from its prolonged use. It is apparently of much value in inflammation of the skin, and the readiness with which ointments, collodions, and powders may be made with it renders it a very desirable application. In the chronic cases a ten to fifty per cent. preparation was employed, but in the acute cases a two and a half to five per cent. one was found to give the best results. These in many instances were extremely satisfactory and even brilliant.

The Hygienic and Therapeutic Aspects of Climbing. (*Lancet*, October 28, 1893.) By Hermann Weber, M.D.

In this interesting paper the writer strongly commends this mode of exercise to the serious consideration of medical men. Mountain tours, in which the main climatic conditions are rarefied and dry air, lower shade temperature and strong insolation, are recommended as a powerful therapeutic means for regaining health and energy and promoting longevity. They must, however, be arranged according to the state of the organs and the general condition of health, and should include the climatic elements to be desired in the case of each person. Those most frequently requiring this mode of exercise are men and women who have worked hard mentally in their various occupations, and have not taken sufficient open-air exercise, and in consequence have become irritable, dyspeptic, and depressed, having lost both mental and bodily energy. Bad results may occur, however, in those suffering from defects in the heart or blood-vessels, or in the lungs or nerve-centres, or owing to insufficient preliminary training before tours are undertaken requiring great exertion. Several interesting cases are given illustrating these dangers. At the close he sums up his paper as follows: 1. Judiciously arranged mountain tours deserve a place in general therapeutics. 2. They can be rendered eminently beneficial by adapting them to the capacities and requirements of each case. 3. Mountain tours need not be restricted to the period of the greatest vigor, but may be used in favorable cases after the climax of life is past. 4. It is, however, necessary to forbid climbing to persons just recovering from acute disease, and to those affected with some chronic or quiescent disease (phthisis, arterio-capillary fibrosis) or with senile decay, and except with great caution to those who are out of training or affected with obesity.

NEUROLOGY.

IN CHARGE OF CHARLES W. BURR, M.D.,

Pathologist to the State Asylum for the Insane, Norristown; Visiting Physician to the Home for Incurables; Visiting Physician to St. Joseph's Hospital, Philadelphia, Pa.

Beri-Beri as an Infectious Disease. (Die Stellung der Beri-Beri unter den Infectionskrankheiten. *Arch. für path. Anat. und für Klin. Med.*, Band cxxxii., Heft 1, 1893.) By Max Glogner, of Samarang, Java.

The investigations conducted by this author leave no room for him to doubt that this disease has a protozoon cause. In twenty cases, in which he examined the blood microscopically, he found among the red blood-corpuscles an organism similar to the amœba. It acts upon the system, through the production of a poison, which has a strong chemical affinity for nerve-tissue. That such an organism exists in connection with this disease, its clinical symptomatology and progress under treatment have for a

long time shown. There existed a difference of 33.7 per cent. between a series of cases treated without and with quinine, as regards mortality. The increased frequency of the pulse, which this author considers the most constant and marked characteristic symptom of this disease, was rapidly controlled by the exhibition of quinine in daily doses of twenty-three grains continued for one week. The patients felt the effect of the drug in the decrease of all symptoms. In one to one and a half months they could walk, and the regeneration of muscles, nerves, and blood went rapidly on.

A Case of Diphtheritic Hemiplegia. (Ein Fall von diphtherischer Hemiplegie. *Neurolog. Centralbl.*, No. 14, 1893.) By Jul. Donath.

The author reports a case of hemiplegia occurring in a child eight years old after a fourteen-day attack of diphtheria. In the third day of convalescence a complete right-sided hemiplegia, with marked involvement of the face, and at the same time aphasia occurred. The paralysis was complete for three weeks, the aphasia for four, while an entire recovery was not made at the end of five months. The author says that such a typical hemiplegia with contractures, lasting for five months, leaves little doubt that a cerebral hemorrhage was present. [Its diphtheritic etiology seems, however, more doubtful.]

A Case of Polioencephalomyelitis without any Anatomical Lesions. (*Brit. Med. Jour.*, July 22, 1893.) By J. Dreschfeld, M.D., F.R.C.P.

The case reported "commenced with paralysis of the eye-muscles, which disappeared after some months, reappeared after some years along with symptoms of bulbar paralysis, and, while the eye-muscles regained their power, the bulbar symptoms along with symptoms of weakness in some of the spinal muscles persisted till some years after; somewhat suddenly there appeared again complete ophthalmoplegia externa with almost complete paralysis of all the motor cranial nerves and of the upper cervical nerves, with atrophy of some of the affected muscles, whilst there were no sensory disturbances of any kind. At the necropsy a most careful examination of the peripheric and central nervous system showed nothing to account for the symptoms observed during life."

The author believes, "that the lesion exists in the nuclei of the cranial nerves either in ganglia cells or in the fine net-work of fibres and processes which connect these cells with the nerve-fibres."

The Treatment of Graves's Disease by Thyroidectomy. (*Jour. of Nerv. and Mental Dis.*, No. 12, 1893.) By J. J. Putnam, M.D.

The author reports a case of partial removal of the thyroid as a treatment for Graves's disease, and strongly recommends this operation in certain of these cases.

His patient was a woman, twenty-nine years of age, with tachycardia,

exophthalmos, tremor, nervous agitation, dyspnœa, and all the other symptoms of a moderately severe form of Graves's disease. There was a systolic murmur in the mitral area, transmitted towards the axilla; and the pulmonic second sound was accentuated. The right lobe of the thyroid was removed by operation; the pulse and respiration were markedly affected, and stimulation was found necessary, strychnine and brandy being given. There was an excessive secretion of mucus, and the pulse was between 180 and 200. The afternoon after the operation the pulse was 185, the temperature 104° F., and there was great difficulty in breathing. The patient remained in a critical condition for four days. There were symptoms of threatening pneumonia, but they passed away, and the patient continued to improve steadily, and unfavorable symptoms gradually disappeared. Four months after operation the patient was much better than before, but by no means well.

The time at which improvement begins after operation in these cases varies; sometimes it has begun immediately after operation, while in other cases it has been more gradual, occupying many months. The author believes that the literature shows that the portion left behind shrinks rather than enlarges, and that there is no danger of recurrence. All the results seem to be good, no matter what the character of the tumor which was removed. It seems to the author that in order to explain the good results produced by thyroidectomy, we are not obliged to assume that the goitre is the cause of the other symptoms, but that thyroidectomy gives a physiological rest to the disturbed nervous centres, removes peripheral stimulations, and increases the stability of the central nervous system. The author has summarized, in a tabulated form, fifty-one cases of operation, with four deaths.

Three Cases of Remarkable Spinal Anterior Curvature with Mental Aberration. (*Med. News*, December 9, 1893.) By S. Weir Mitchell, M.D.

The author reports three cases whose symptoms, though not identical, were so similar that he asks, "Is there a clinical type, hysterical or not, characterized by mental failure, physical weakness, retinal changes (?), and rapidly evolved spinal changes, extreme in degree and otherwise unusual in type, not due to organic vertebral disease?"

The first case, a girl of thirteen, had a remarkable curvature of the entire spine; the belly protruded, while the head was carried back to enable her to see objects on a level with the eyes. "There was no possibility of straightening her either by passive efforts or through volition, but these efforts gave rise to no pain. The spine seemed to be rigid, and she could neither make it erect nor fully bend to one side; the head also possessed small power of rotation or flexion, while the neck muscles were not rigid. With gain in her mental state, these peculiar symptoms have become notably less."

This description applies nearly throughout to the second case, except

that his spinal difficulty was altogether above the lumbar region, and the term hysterical cannot be applied as it can in the former case.

The resemblance in symptomatology is not so distinct in the third case, but suffices to justify the grouping. "Here, then, are three patients more or less insane, and all showing disorder of the vertebral column, which comes with the mental state, and lessens as this gets better, and is not due to appreciable organic disease." The author inclines to the belief that these cases "illustrate a novel clinical group, which may be non-hysterical or may assume the hysterical type."

PEDIATRICS.

IN CHARGE OF T. M. ROTCH, M.D.,

Professor of Diseases of Children, Harvard University; Visiting Physician to the Children's Hospital, Boston.

ASSISTED BY

E. M. BUCKINGHAM, M.D.,

Instructor in Diseases of Children, Harvard University; Visiting Physician to the Children's Hospital, Boston.

Non-Tubercular Bronchial Glands; Contagion of Broncho-Pneumonia in Measles, Pertussis, etc.; Contagion of Diphtheria after Apparent Convalescence. (From "French Views of some Diseases of Children." *Boston Medical and Surgical Journal*, April, 1893, p. 410.) By F. Gorden Morrill, M.D.

The writer, in a paper based on a recent visit to Paris, quotes Simon as laying great stress upon the comparative frequency of enlarged bronchial glands in non-tubercular cases, and on the curability of this affection in cases where treatment can be properly carried out. It is stated to be at present the prevailing opinion among the most competent men in Paris that so-called bronchial phthisis is non-tubercular in twenty per cent. of all cases. Enlarged bronchial glands not infrequently give rise to errors of diagnosis, causing a spasmodic cough, not to be distinguished from pertussis in the absence of a history of the illness. Not only hygienic treatment is used but counter-irritation as well. This, Morrill thinks, is best made after the manner of Olivier. The skin is cleaned of oil, the area for counter-irritation defined with vaseline, and phenic acid, nine parts to one of alcohol, is applied. The instant the skin begins to whiten, which may be in a few seconds, the surplus acid is removed with alcohol on a camel's hair-brush and a cotton dressing is loosely applied. The pain is sharp but generally short, and is, in the writer's opinion, in no way to be compared with that from a blister. Intense congestion lasts some days. No renal complication follows, and *in children* the subsequent pigmentation disappears.

The etiology of the various forms of broncho-pneumonia has been much studied at Paris this year. The disease is highly infectious when accom-

panying measles, pertussis, and grippe. Instances have been repeatedly observed of diphtheritic patients being infected by children in whom the original diphtheria had become complicated with broncho-pneumonia. Allowing all cases with measles to remain together increases the mortality to a marked extent, hence cases with pulmonary complications are separated from the others. At the Enfants assistés the same precaution is taken in whooping-cough, and statistics show the rule to be good practice.

It is regarded as proved, that diphtheria may be transmitted at least two weeks after the disappearance of the membrane, the bacillus still being present in the saliva in all its virulence. It may also be found in the pharyngeal mucus of children in cases where the deposit is too slight and its consistence too soft to allow the use of the term "membranous."

Study of Diabetes in Early Life. (*Revue de Médecine*, June, 1893, p. 546.) By P. Duflocq and Dauchez.

Diabetes is very rare in early life, so much so that, although the diagnosis is easy when it is once suspected, yet it may be overlooked. Mialhe assures the writers that he has found it a dozen times. Kulz reports six cases, but both his work and that of Leroux show how uncommon the disease is in early childhood. Berlioz writes to the authors that in twenty thousand urinary analyses, diabetes had been found but once. He adds, however, that it is exceptional to examine the urine of patients under two years of age. His one case was three and a half years old. Coma is rare in the diabetes of young children. It occurred in fifteen of the seventy observations of Leroux.

Six cases are reported by the authors with considerable detail. One of their own, fed on sterilized milk, died at eighteen months, fifteen days after the first symptoms were discovered, the parents being intelligent and attentive people. One of Conelly's (*Med. T. and G.*, July, 1874) died at twenty-one months after an illness of about three months. In each case the symptoms were coincident with dentition. Both belonged to diabetic families. Busch reports a death from diabetic coma at fifteen months, after an illness, so far as observed, of three weeks. Hauner's case became ill seven (weeks?) after birth and soon died. The child had been fed with farinaceous food, and changed diet temporarily ameliorated the symptoms. Rossbach (*Berlin Klin. Wochenschrift*, 1874) reports that a child of seven months fell from the arms of its nurse and immediately had convulsions, prolonged insensibility, and other severe nervous symptoms. Four weeks later diabetes was diagnosticated, and the child died three months after the fall. Kitselle (*Journal für Kinderkrankheiten*, 1852) was able to make the diagnosis in his own son a few days after birth. At six months symptoms were marked, the child was like a skeleton, and the fontanelles as at birth. At eight months he began to improve.

The cases are too few to exactly determine the symptomatology. There was a general resemblance to the cases of adults. In the two most fully

reported, the patients were irritable and constipation was marked. In all but the last the course was rapid. Emaciation, which certainly does not always occur, did exist in the cases of this paper, as well as thirst, hunger, and polyuria. Death may occur from coma or exhaustion, as in the cases of Rossbach and of Hauner.

Deaths are reported from pulmonary gangrene at ten months, bronchopneumonia at two years, and general miliary tuberculosis at twenty-two months. Recovery was observed in the case of Kitselle, reported above.

Diabetes Mellitus in an Infant. (*Medical News*, October, 1893, p. 493; from *Indian Med. Chir. Review.*) By Tavaria.

Following a fall from the cradle, a child of ten months was wakeful and uttered shrill cries from time to time. Temperature rose to 102° and 103°, and within a short time, less than a week, it had a well-developed diabetes with abundant saccharine urine. It soon died of pneumonia. The diet had been the breast and diluted cow's milk.

SURGERY.

IN CHARGE OF HENRY R. WHARTON, M.D.,

Demonstrator of Surgery and Lecturer on Surgical Diseases of Children in the University of Pennsylvania; Surgeon to the Presbyterian Hospital, the Methodist Episcopal Hospital, and the Children's Hospital; Consulting Surgeon to the Presbyterian Orphanage.

The Healing of Empyemas. (Die Heilung des Empyems. *Deutsch. Arch. für Klin. Med.*, Band lii. p. 1, 1893.) By Aufrecht, of Magdeburg.

After having for a long time advocated the use of aspiration in the treatment of empyema, this author has concluded "that the most useful method of treating empyemas is by the opening of the thoracic wall with resection of a rib." In the performance of the operation he advises as the point of incision the most dependent portion of the thoracic wall when the patient is in the dorsal decubitus. This is to be found sometimes by the double operation of Küster, though the author for himself prefers the resection of the rib extending from the inferior angle of the scapula towards the axillary line. An exploratory puncture with the hypodermic needle should be first made, and also after the rib is resected before the pleura is opened. The patient should lie upon the back, although this obliges the operator to work in a cramped position, with the patient's side extending out over the edge of the bed or table. The incision through the pleura should be made in the middle of the space that was occupied by the resected rib, in order to avoid the intercostal arteries. If they should chance to be cut they can be caught up with a stitch through the pleura, or, if they are torn at the proximal end of the resected rib, the removal of a second small

piece of the rib will give easy access. The after-treatment consists in thorough washing with a two-per-cent. carbolic solution, and the insertion of a thick drainage-tube, which should be only long enough to hold the wound in the thorax open, and can have no other purpose. Iodoform and an antiseptic dressing complete the operation. The dressing should at first be renewed every day, later every other day. If the temperature present before the operation has disappeared on the following day, the carbolic solution should be replaced by a 0.2 to 0.5 per 1000 solution of silver nitrate. This checks suppuration and hastens the pleuritic adhesion. Exclusive of cases operated on complicated by malignant disease, this author has operated upon thirty-six cases, with one death. The average length of treatment was forty-eight days. The healing, according to this writer, is brought about by the expansion of the collapsed lung, which is caused by the difference of air-pressure, which is greater within the lung than without when the calibre of the main bronchus is greater than that of the wound or drainage-tube in the thorax wall; but healing is also dependent upon the power of the pleura to react after inflammation and to form adhesions by a fibrinous deposit between the costal and visceral pleura.

Gastrostomy by a Valvular Method. (De la gastrostomie par la méthode de la valvule ou du plissement de la muqueuse stomacale. *Arch. prov. de Chir.*, t. ii. No. 5.) By L. Pénières, of Toulouse.

A series of experiments made by this author upon animals disclosed the fact that if a fold of the stomach, containing muscularis serosa and subserosa, be sewn into a wound in the abdomen, so that stitches include only these external coats, there will follow after a few days contraction of the wound in the abdominal wall, and a fold of mucosa will be found to be hanging free within the stomach. He based upon these observations a theory for gastrostomy. The operation he performed on a patient suffering from an impermeable stricture of the œsophagus. Two days after the incision had been made, and the stomach sewn in, he made an opening through the wall of the stomach and between the layers of the mucous membrane that formed a fold within. A feeding-tube was introduced, which was left *in situ* for a few days. It was afterwards removed and only inserted for feeding, the mucous folds forming a valve that closed the opening after the tube was withdrawn. The patient lived thirty-two days after the operation, and died from inanition.

The Osseous Origin of certain apparently Cutaneous Tubercular Ulcerations. (De l'origine osseuse de certaines ulcérations tuberculeuses en apparence exclusivement cutanées. *Rev. de Chir.*, October, 1893.) By M. Adenot, of Lyons.

After a critical study of the history of this subject and of three cases under his immediate observation, the author gives the following as a *résumé* of his study. Certain tegumentary lupoid ulcers, of a wrinkled and

papillomatous aspect, can easily be confounded with malignant tumors, of cutaneous appearance, found especially on the hands and feet, and frequently extending by continuity from the adjacent bones. This continuity may exist or may have existed previously. Sometimes the osseous lesion has healed spontaneously, while the cutaneous lesion continues. Sometimes the osseous disease is latent and the cutaneous lesion will seem to yield to treatment; but relapses are certain, provoked by the contiguous osseous lesion. These osseous foci are often overlooked, and yet are the cause which must be removed before a cure can be effected. The recognition of these osseous lesions in doubtful cases will often in clinical work lead to a differential diagnosis and prove the tuberculous nature of the disease.

GENITO-URINARY SURGERY.

IN CHARGE OF WILLIAM K. OTIS, M.D.,

New York.

Rupture of the Male Urethra. (*Philadelphia Medical News*, October 14, 1893.) By R. W. Stewart, M.D., M.R.C.S.

This author remarks that the best method of affording an exit to the vesical contents through the natural channel after rupture of the urethra has occurred is still in some respects a debatable question. The ideal method of accomplishing this would consist in passing a catheter through the anterior urethra, past the rupture and into the urethra beyond, to the bladder, and retaining it there until the wound in the urethra has become sealed. A diligent but not too protracted effort should be made to accomplish this end, and it will often meet with success, but in a large proportion of the serious injuries to the urethra, especially when the rupture is complete and the torn ends are separated by from half an inch to an inch and a half, it is simply impossible, even with the greatest skill and care, to introduce a catheter into the bladder.

[The method here advocated as being considered "*ideal*"—viz., the treatment of rupture of the urethra without operation—belongs to a by-gone age of surgery, and cannot be too strongly condemned; it adds greatly to the immediate dangers of the patient, and almost inevitably gives rise to grave difficulties in the future. A recent and exhaustive article on this subject by the celebrated French surgeons Legueu and Cestan[1] concludes as follows: "There is no doubt that the day will come when all cases of rupture of the urethra will be treated no longer by the inlying catheter and waiting, but by immediate perineal incision and suture, using all efficacious means to prevent future contractions and protect the patient from the ultimate intervention which the rapid evolution of the lesion will inevitably

[1] Annales des Maladies des Organes Génito-Urinaires, September, 1893, p. 655, *et seq.*

render necessary. All ruptures of the urethra, therefore, should be treated by immediate perineal incision and suture whenever it is possible."—W. K. O.]

The Principles of the Treatment of Gonorrhœa. (Principien der Gonorrhoe-Behandlung. Read before the International Congress of Dermatology, at Vienna, September 8, 1892.) By Professor Neisser, of Breslau.

The distinguished discoverer of the gonoccocus considers that all rational treatment directed towards the cure of gonorrhœa should be based upon the recognition of that micro-organism as the pathogenic principle of the disease. The greatest difficulties encountered in its eradication are that it does not remain localized in the urethra, but spreads to the cord, epididymis, prostate, and bladder in the male; to the uterus, tubes, ovaries, and peritoneum in the female; and that the virus in the later stages is situated deep beneath the epithelial layers, extending thence to the surface or deeper tissues, thus forming a chronic source of infection. It can only be easily reached in the first stages. The aim should be to prevent an invasion of the deep urethra and not to allow the disease to become chronic.

Treatment should be begun as soon as possible. The substances used must be (*a*) such as will kill gonococci, (*b*) which increase the inflammation as little as possible, (*c*) which do not injure the mucous membrane. Such are nitrate of silver 1–4000 to 1–2000; ammon. sulpho-ichthyol., 1–100; weak Rotter's pastilles, free from carbolic acid and mercury, 1 pastil to 250 of water; bichloride of mercury, 1–30,000 to 1–20,000. Pure astringents in the early stage are unsuitable, as they may serve to spread the infection. Cauterizing solutions of great strength, which may cause stricture, are dangerous, as are also most mechanical methods, such as the endoscope, bougies, etc. The best treatment is the early and frequent antiseptic irrigation of the urethra. For practical reasons, viz., the wide spread of the disease, injections with large syringes must generally be used instead of irrigations.

In the female the treatment should consist of thorough mechanical cleaning of the urethra and cervix, also using douches and injections.

The general dietetic, hygienic, and antiphlogistic measures are useful, and should be employed as far as possible. In all cases not very acute the presence of a posterior urethritis should be recognized and treated locally if an examination discloses the presence of gonococci. The treatment should not be limited in duration, as the aim should be not rapidity, but certainty. In chronic cases it should be determined if the discharge is infectious, and if it is so it should be treated by irrigations or instillations. If it is simple we must be guided by the pathological and anatomical changes in the mucous and submucous membrane as to the line of treatment it is best to employ. For the most part these cases require no treatment at all. When the deeper tissues are affected, sounds, instillations, the endoscope, and massage should be used.

The successful treatment of gonorrhœa in the female is attended with

much more difficulty than in the male, and without frequent microscopical examinations judgment as regards the therapeutic result is impossible. Treatment should be begun as soon as possible and followed up most energetically, as the tubes, uterus, ovaries, or peritoneum, once infected, are very difficult to cure, frequently necessitating grave surgical operations.

ORTHOPÆDICS.

IN CHARGE OF REGINALD H. SAYRE, M.D.,
Assistant to the Chair of Orthopædic Surgery, Bellevue Hospital Medical College, New York.

A Contribution to the Study of Club-Hand. (*New York Medical Journal*, November 4, 1893.) By Reginald H. Sayre, M.D., New York.

According to the author, club-hands may be congenital or acquired. The latter may be caused by vicious cicatrices as a result of burns, by paralysis of certain muscles or contraction of others from central nerve irritation, or in other cases resulting from injuries to the bones of the hand or forearm.

In the Philadelphia *Medical News*, May 12, 1888, J. K. Young reports a case of club-hand, due to irritation of the brain, which disappeared on the removal of the disturbing influence. The infant was delivered by forceps, after a protracted labor, and the left side of the head was much crushed. A large hæmatoma formed here, and subsequently the right hand was markedly adducted, the fingers and thumb were flexed, and the hand was flexed at the wrist. The hæmatoma was incised, and profuse bleeding followed, and subsequently the deformity gradually subsided, disappearing twenty-four hours before death, which occurred some days later.

Bilhaut, in the *Annales d'Orthopédie*, May, 1893, relates a case of club-hand which was supposed to be congenital, but which was really the result of a fracture of the ulna at birth or soon after, with subsequent loss of bone from suppuration, giving rise to inequality in the length of the bones of the forearm, causing sharp deflection of the hand towards the ulnar side.

The congenital cases may be divided into three varieties: 1. Those where the skeleton is complete and well formed. 2. Where the skeleton is complete but ill formed. 3. Where the skeleton is incomplete and distorted.

In the milder cases, when seen early, it is sometimes possible to restore the hand to proper shape and function by constant manipulation and retention of the parts in an improved position by some fixed dressing, as, for instance, the plaster-of-Paris bandage, changing the dressing from time to time, as the deformity is reduced. Section of the tendons or ligaments or fascia may become necessary, especially if the case is not seen in the early stages.

Many of these structures are so situated as to make open section much

to be preferred to the subcutaneous method, and if the flexor tendons have to be divided, it would seem better to operate on the forearm instead of the hand, and to split the tendons longitudinally, and, after having gained such additional length as was needed by sliding the ends past each other, to suture them together once more.

A case is reported having a congenital club-hand and club-foot of the right side, and also a lateral curvature of the spine, the concavity being on the right side. The lateral curvature was apparently due to the imperfect development of the whole right half of the body, the right upper and lower extremities both being markedly smaller than their fellows. This might possibly be accounted for by disuse, as, on account of the very severe form of club-hand and club-foot, the boy had depended almost altogether on the left half of his body for assistance. The club-foot was an extreme varo-equinus, and was treated by deep subcutaneous incision in the sole of the foot and tenotomy of the tendo Achillis, the foot then being immediately replaced in the normal position by means of Bradford's club-foot twister, it being necessary to employ a very considerable amount of force to effect reduction. The foot was then kept in position by plaster-of-Paris boots, renewed about every three weeks, until at the present time his foot is practically in a normal shape.

The club-hand was almost the counterpart of one described by Kermisson and Longuet in the *Revue d'Orthopédie*, January, 1893, and which they had an opportunity to dissect. The radius and thumb were absent, as well as the first metacarpal bone and a certain number of the carpal bones. The ulna was curved in its middle at an angle of about thirty degrees towards the side where the radius should have been. The hand was almost at right angles with the forearm, bent towards the radial side, and flexed on the forearm. The carpus did not articulate with the ulna, but was attached to it by means of firm, ligamentous bands.

An osteotomy of the ulna was first performed to correct the curve, and after the bone had firmly united in a straight line, Sayre endeavored to stretch the contracted tissues on the side of the arm where the radius should have existed, by means of adhesive plaster attached above and below the wrist, and passing around the ends of a wooden splint, which was fastened to the forearm.

After several weeks of traction the hand could not be drawn down far enough to permit the ulna to slide above the carpus, although a considerable elongation of the contracted tissues had been effected. It had been the author's intention to endeavor to form an artificial joint between the lower end of the ulna and the carpus, but on cutting down upon the bones, he found that after freeing the end of the ulna from all ligamentous attachments, it was impossible to draw the carpus clear of it, and, therefore, what he took to be the os magnum and unciform were removed. The scaphoid and semilunar apparently did not exist. The tip of the styloid process of the ulna was then cut off, and the end of the bone inserted into

the gap in the carpus formed by the removal of the carpal bones. It was determined to leave the ulna free instead of wiring it fast, thinking that a more serviceable hand would result from this method, and that the bones could be wired together later on if necessary.

The boy's control of his motions and his ability to grasp objects is greater now than it was before the operation, while his appearance is vastly improved. He is still wearing an apparatus with a joint at the wrist, allowing flexion and extension, while retaining the bones in a better position than they assume when left to themselves.

OPHTHALMOLOGY AND OTOLOGY.

IN CHARGE OF J. E. HARPER, A.M., M.D.,
Chicago, Illinois.

Treatment of Granular Trachoma.—In a report on recent advances in ophthalmology, read by Dr. John Y. Oldham at the meeting of the Kentucky State Medical Society (*American Practitioner and News*, July 1, 1893), he gives the following *résumé* of this subject:

In the treatment of granular ophthalmia we have as yet no one remedy, either mechanical or medicinal, that is universally accepted by the profession as *the* remedy; the opinions and treatment are various and variable. We do agree as to the constitutional requirements, and if we accept the majority of the text-books on the subject, nitrate of silver in from a one-per-cent. solution to the mitigated stick, sulph. copper, a knife, and a pair of scissors would constitute the local treatment. In many cases the above remedies answer, but unfortunately we meet with cases in which they prove ineffectual. In the treatment of this affection Darier, chief of Abadie's clinic, gives, as followed in that service, "first a general anæsthetic; he then completely everts the lids by special forceps, the granulations are thoroughly scarified with a grattage knife, to be followed by a scraper and stiff brush until all the morbid tissue is destroyed and brushed away; this to be followed by thorough cleansing with cotton wool moistened in one to five hundred solution of corrosive sublimate and frequent bathing with one to two thousand solution of corrosive sublimate and ice compress."

Dr. Edward Jackson (*Medical and Surgical Reporter*, August, 1892), as a mechanical treatment of trachoma prefers Knapp's corrugated roller forceps, as its use is not followed by contraction, and in the majority of cases it does not require a subsequent operation. "He claims that while incision of the granules and sago-like masses and excision of the retrotarsal fold abridges the course of the disease, it leaves a contracted conjunctival sac. Also grattage of the entire surface, followed by the stiff brush, will cut short the disease, but leaves too much contraction behind." Cheval-

lereau, as a treatment of the same affections, "uses cocaine, everts and holds the lids apart with his left hand, then by attaching a compress soaked in one to five hundred sublimate solution to right index finger he makes firm and vigorous friction over the entire conjunctiva of the lids and canthi. The results he reports as good. Of the different mechanical treatments I agree with Dr. Jackson in the preference of Knapp's improved roller forceps."

Ulcers of the Cornea. In the *Medical Mirror*, July, 1893, Dr. C. Barck, writing of the use of eserine and atropine in corneal ulcerations says, "In all severer affections of the cornea there is a hyperæmia of the iris, which can lead to inflammation and deposits on the anterior lens capsule. Atropine has therefore been recommended as a preventive of iritis, and an anodyne, and used with benefit since a long time. Only lately it seems to have come somewhat into discredit, and eserine was recommended in its place. The reasons given are that whilst atropine increases the intra-ocular pressure, eserine decreases it, and will therefore prevent perforation; another, that in old people, atropine might cause glaucoma.

"I cannot share these deductions. Whenever an ulcer perforates, it does so because the innermost lamellæ of the cornea have been destroyed, and no eserine will prevent it. The danger of glaucoma being thus caused, is not imminent, as in all cases of ulcers the intra-ocular pressure is *per se* diminished. The use of eserine is only indicated in some rarer instances, where in an ulcer near the corneal margin perforation is threatening and a prolapse of the iris into the opening shall be prevented."

Race Characteristics in Eye Disease.—In a lecture at the New York Polyclinic, Dr. J. H. Claiborne (*Hot Springs Medical Journal*, August 15, 1893), said, "There can be no doubt that the Irish and Jewish races, two races utterly dissimilar, are most prone to be attacked by trachoma. And of these two races the most lamentable results I have found in the Irish race. Teutonic trachoma dwindles into contemptible insignificance in the presence of the Irish type. It is curious enough, I may say in passing also, that the Jewish race is peculiarly liable to glaucoma."

Electrozone in Ophthalmic Practice.—In the *American Therapeutic*, August, 1893, Dr. P. D. Kelser reports the results he secured by the use of this new antiseptic in suppurative diseases of the eye. He says, "The first case was a bad *slough of the cornea* from injury of only two days' standing, in which I instilled a few drops of the pure solution, *electrozone*, as it is called. It caused severe pain for at least ten minutes, and gave all the appearance and action of a strong astringent on the conjunctiva. Finding this too severe I diluted it one-half with fresh water, and instilled it into the eye three times a day for two days, when all the sloughing process was entirely stopped.

"The next case was *purulent conjunctivitis* of some days' standing, with the same success in the short time.

"Then a case of *conjunctivitis neonatorum* was promptly relieved of the creamy pus discharge in a few days.

"Then another case of *complete slough of the cornea* with free discharge was almost immediately benefited.

"These are only my first experiments, and from all appearances I think it is the most rapid and thorough disinfectant and bactericide so far presented to the profession."

DISEASES OF THE LARYNX, NOSE, AND SURROUNDING STRUCTURES.

IN CHARGE OF J. PAYSON CLARK, M.D.,

Physician for Diseases of the Throat, Massachusetts General Hospital; Physician to the Throat Department, Boston Dispensary.

Rhinitis Œdematosa.—J. C. Mulhall (*New York Med. Journ.*, October 14, 1893) has seen six cases of an affection which he designates as above. It consists of an infiltration of pure serum into the connective tissue overlying the inferior and middle turbinated bones. It is sometimes migratory, changing its seat. It may be acute or chronic, and resembles a recent myxoma. In two cases it was seen in connection with bronchial asthma. In the other four cases asthma was absent. The writer is inclined to believe the affection to be connected with intestinal ptomaines, which form a chemical irritant to the sympathetic nervous system. Some atmospheric factors plus deranged digestion plus central instability plus a hyperæsthetic nose probably unite in the etiology of a single case. Nasal sprays are to be avoided in treatment, also all local treatment, except scarification. In chronic cases nasal abnormalities should be corrected. Any faulty condition of the alimentary tract should be rectified.

Paræsthesia of the Pharynx and Larynx as a Premonitory Symptom of Tuberculosis of the Lungs. (*Medical News*, September 30, 1893.)

While, primarily, hysteria and hypochondria and, secondarily, the results of injury to the mucous membrane from swallowing some hard substance are etiological factors in a large percentage of cases of paræsthesia of the pharynx and larynx, J. Wolfenstein considers, with Jurasz and Gottstein, early stages of tuberculosis of the lungs as a cause of this symptom in some cases. He has seen six cases where the causation could be traced to no other source than probable beginning tuberculosis of the lungs, and believes this symptom to be not a rare accompaniment of the early stages of pulmonary phthisis. In those cases in which no physical signs can be found in the lungs it should be considered a premonitory symptom of phthisis,—

(1) if there is a tubercular family history; (2) if the paræsthesia cannot be traced to a foreign body or an injury produced by such agency or by the swallowing of some hard substance; (3) in the cases of imaginary foreign body of indefinite etiology with the presence of anæmia; (4) in all cases which cannot positively be placed under the head of hysteria or hypochondria. These cases are best treated by the administration of creosote without the use of any local treatment.

The Cautery in Staphylotomy.—T. A. De Blois (*New York Med. Journ.*, October 21, 1893) favors the use of the fixed platinum wire cautery loop in removing a portion of the uvula. He claims that after healing the uvula is well "tapered," and not "clubbed" as after clipping with scissors. The wound-surface is a bevel from behind forward and from the sides towards the point.

The Withholding of Reports of Operations for the Relief of Cancer of the Throat.—D. B. Delavan (*New York Med. Journ.*, October 14, 1893) makes an earnest appeal that a "full, painstaking, and accurate account be given of the history of every malignant growth removed from the upper air-passages." By this means "many of our present difficulties and doubts might be removed," and we would doubtless be enabled "to advise with more intelligence and to act with materially increased prospects of success." Or, if all our present methods of proceeding against carcinoma "should be proved practical failures," we might be thus stimulated to the discovery of some means of cure for this affection.

DERMATOLOGY.

IN CHARGE OF W. A. HARDAWAY, A.M., M.D.,
Professor of Skin-Diseases in the Missouri Medical College, St. Louis.

ASSISTED BY

C. F. HERSMAN, A.M., M.D.,
St. Louis.

Psorospermosis Follicularis Vegetans.—It is very interesting to note the diversity of opinion which prevails in regard to the essential nature of the disease which was first described accurately by Darier, and called by him Psorospermose folliculaire vegetante. The clinical descriptions of the disease which have up to the present time been published agree in all the essential points: all writers describe practically the same microscopical findings. The difference of opinion arises when the interpretation of certain bodies which are always present in the crusts is attempted. In a recent publication (Internationaler Atlas Seltener Hautkranheiten, viii.), Darier describes his two original cases, and gives his view of the real nature

of the bodies above referred to. The bodies are best seen in the stratum mucosum and the stratum granulosum. Here they occur as granular cells about the size of epithelial cells, with a nucleus and a sharply-defined, double-contoured cell membrane. As the bodies move with the epithelial cells into the horny layer, their appearence changes: their volume becomes diminished, the nucleus is less distinct, and the doubly-contoured membrane is not so evident. Some of the bodies are free, but others are contained within epithelial cells, the nucleus of which is often pushed to one side. Darier denies that these bodies can be epithelial cells, because in the Malpighian layer they are without prickles to join them to the other cells. That they are not the result of degeneration of the epithelial cells he thinks is shown by the character of the nucleus and the intracellular situation of the bodies. Darier admits that there is doubt as to the exact signification of the bodies, but for himself feels sure that they represent one of the stages in the life history of some species of psorosperm. It has been urged that this cannot be true, as none of this class ever produce an appearance like that which the bodies under consideration show in the upper epithelial layers, to which the term "grains" has been applied. Darier calls attention to the fact that Malassez has noticed this transformation occurring in the coccidia of the rabbit's liver.

Pawloff (*Archiv für Dermatologie und Syphilis*, 1893, ii. Heft) describes two cases of Darier's disease, and draws, from a careful consideration of the microscopical examination as well as the clinical history, the conclusion that the round bodies described by Darier are nothing else than an anomalous cornification of the cells.

Malignant Growths of the Skin, Particularly of the Face. Corlett (*Medical Record*, September, 1893), in an article under the above title, reports the case of a young woman who had had lupus of the right cheek since she was a child. When the case first came under the observation of the reporter, there was great disfigurement of the face. While under treatment the external auditory canal was attacked and completely occluded by the disease. After this condition had been present for four months the patient began to complain of deep-seated pain in the ear. She soon became delirious and died. At the post-mortem pus was found in the internal ear, and the meninges of the brain on the same side presented tubercular nodules.

This case is of interest on account of the rarity with which lupus is followed by tuberculosis of internal organs.

Keratosis of the Palms and Soles, probably Due to Arsenic.—Hardaway (*British Journal of Dermatology*, October, 1893) reports a case of tylosis of the palms and soles, which was probably due to the long-continued use of arsenic. The patient had been taking Fowler's solution in four-minim doses three times a day for four years, for a supposed epilepsy. At the time of the observation both palms were studded over with numer-

ous warty elevations of various sizes and shapes, and of darker hue than the surrounding skin. These thickenings of the epidermis were so closely placed as to suggest at a little distance a general thickening. To the touch the parts had a shotty feel. On the backs of the hands, especially over the knuckles and finger-joints, there were a number of common warts.

The soles were affected in a similar manner, save that the elevations were not so numerous and were somewhat larger. There were no warts upon the backs of the feet.

The nails were normal, and there was no abnormal sweating nor any other obvious evidence of implication of the sweat-pores.

REVIEW OF ITALIAN, SPANISH, AND PORTUGUESE MEDICINE.

IN CHARGE OF A. M. FERNANDEZ DE YBARRA, M.D.,
New York,
Corresponding Member of the Medico-Chirurgical Academy of Madrid, Spain, the Argentine Medical Circle of Buenos Ayres, South America, and the Society for Clinical Studies, of Havana, Cuba; Executive Assistant Secretary-General of the First Pan-American Medical Congress.

Treatment by Suspension of Progressive Locomotor Ataxia, Sexual Impotence, and Spermatorrhœa. (*Boletin de Medicina*, Santiago de Chile, Nos. 66, 67, 68, 69, and 70, October, 1892, to February, 1893.) By Dr. José Mercedes Aravena.

This is a masterly study of the subject of treatment by hanging. Beginning with its early history, when Motschoutkowsky, of Odessa, Russia, made use of it as a therapeutic agent, the author passes on to explain the reasons why there is such a great discrepancy in the statistics presented by different observers regarding its employment in tabes dorsalis. After the initial period of this affection a complete satisfactory result is not to be expected, but, nevertheless, it is necessary to bear in mind that suspension increases the vascularity of the meninges. All the symptoms of tabes are not equally affected by hanging; those connected with the encephalon are modified in a favorable manner, as also those of the spinal cord; these last even more rapidly. Walking is therefore much improved, the lancinating pains disappear in many cases, and the bladder troubles are also advantageously modified. But the symptom which seems more favorably affected, in the great majority of the cases, is sexual impotence.

If after twenty or thirty hangings there is no positive improvement, it is better to discontinue the treatment for a while, and resume it again, because it has been found that after a period of rest a second trial produces notable improvement of certain symptoms.

In view of the fact that the treatment of locomotor ataxia by suspension has shown its good effect on the want of male sexual vigor, the therapeutic

employment of the same means in the treatment of impotence not dependent on any lesion of the posterior columns of the spinal cord has become, the author says, a perfectly legitimate procedure.

Dr. Aravena collected a series of cases that convinced him of the efficacy of treating sexual impotence by hanging. Relying on the beneficial effect thus produced in the nervous system of the male sexual organs, he made use of it in the treatment of spermatorrhœa, with most gratifying results. He ends his learned dissertation with the following conclusions:

I. Hanging is indicated in the *sclerotic* or hardening period of tabes dorsalis, and it is contra-indicated in the period of *congestive evolution* of the cord. Notwithstanding, when the genito-urinary disturbances appear before the ataxic period is fully developed, when the shooting pains are severe, and the administration of ergot is of no use to combat the first symptoms, whereas narcotics and analgesics fail to relieve the lancinating dolors, then it is the proper time to employ suspension, although the period of congestive evolution has already commenced.

II. Hanging produces very favorable influence in the treatment of sexual impotence due to a neurasthenic condition of the whole system, or as the result of involuntary discharges of semen.

III. In the treatment of spermatorrhœa brought on by venereal excesses or by masturbation, therapeutic hanging is a valuable auxiliary in its cure.

BOOK REVIEWS.

Essentials of Bacteriology: being a Concise and Systematic Introduction to the Study of Micro-Organisms. For the use of Students and Practitioners. By M. V. Ball, M.D., Physician to the Eastern Penitentiary of Pennsylvania. Second Edition. With eighty-one illustrations, some in colors, and five plates. Philadelphia: W. B. Saunders, 1893.

Such advances have been made in the last few years that it is with regret that we notice that many of the old stereotype plates are used without any corrections whatever. The printed page where corrections and additions have been made sometimes appears too full, as is seen on page 125, where the print practically reaches to the bottom of the page. A number of the errors in the first edition have been corrected; for example, Fig. 74 of the old edition is labelled "Bacillus murisepticus," whereas in this edition it (now Fig. 54) is correctly given as the "Bacillus of glanders." In our experience the bacillus of glanders does not appear singly, as is stated, but in pairs, giving rise very frequently to a V shape or an angular appearance.

More credit should be given to the source from which the illustrations have been taken. A number of the cuts of the first edition contained no clue as to their origin. This has been obviated in several cases in the new edition by mentioning the source. The new features of this manual consist in a tabular statement of the chief characteristics of the principal bacteria and five plates taken from the "Atlas of Bacteri-

ology," by Fränkel & Pfeiffer, and Shakespeare's article on cholera in the "United States Government Reports." The size of the book is increased from 159 pages to 205, less the two pages 15 and 16 which are not to be found in the book.

Under the head of "Tuberculin as a Diagnostic Agent," it would have been well to mention the name of Pearson, of the Veterinary Department of the University of Pennsylvania. We should not like to admit that the bacillus of hydrophobia has been discovered. There are many errors which are, no doubt, merely typographical. We cite, for example, "Bacillus avicidis" in the index and "Bacillus avicidus" in the text. The amplification of the bacilli should be given more frequently; for example, in Fig. 54 we have the letters "*a*" and "*b*," in which the amplification of "*b*" is much greater than that of "*a*," and yet no description is made of these letters.

We are glad to see the definitions of such words as alexin, antitoxin, etc., and to note that the bacillus of influenza is described, and yet on page 142 we find it stated that the bacillus murisepticus is the smallest known bacillus, while on page 120 we find the statement made that the bacillus of influenza is about one-half the size of the bacillus of mouse septicæmia.

We could point out many other errors, but, notwithstanding all this, we recommend the work as a reliable and safe one for the use of medical students. It cannot be considered as being of value to advanced laboratory workers.

A Treatise on the Science and Practice of Midwifery. By W. S. Playfair, M.D., F.R.C.P., Professor of Obstetric Medicine in King's College, London; Examiner in Midwifery to the Universities of Cambridge and London, and to the Royal College of Physicians. Sixth American, from the eighth English edition. Edited, with additions, by Robert P. Harris, M.D. In one octavo volume of 697 pages, with 217 engravings and 5 plates. Cloth, $4.00; leather $5.00. Philadelphia: Lea Brothers & Co., 1893.

This book presents, in practical form, the principles which govern the proper management of pregnancy, labor, and the diseases which accompany these processes. The first part is devoted to the anatomy and physiology of the organs concerned in parturition, and leaves nothing unsaid which would add to the value of the text. Part second treats of pregnancy, in ten chapters, the majority of which deal with the diseases and disorders of the nervous, vascular, and digestive systems attendant upon this condition. Part three deals with the phenomena of labor, the management of this process, and the various presentations of the face, shoulder, arm, or trunk, etc., which may occur, as well as prolonged labor, deformities of the pelvis, hemorrhage after delivery, rupture of the uterus, etc. Part four deals with a number of obstetrical operations, and in this the American editor strives to do away with the leaning of the English author towards a preference for methods destructive to the infant, based upon information current forty years ago. Puerperal septicæmia is carefully handled in part five, which deals with the puerperal state, and the book concludes with a chapter on pelvic cellulitis and pelvic peritonitis. While a number of excellent plates accompany the text, and serve to illustrate admirably what the author has intended, the work is not as freely illustrated as we are led to expect from the especial stress which is ordinarily laid nowadays upon the illustrations of medical works. In relation to strict antisepsis in operative procedures the book is not up to the times, and some recent American works could set this treatise a very fair example to profit by. The typography and press-work are all that could be desired, and nothing but praise is due the publishers for the results which they have obtained. While the general work is conservative, and somewhat behind recent works on this subject, it will prove useful as a text-book to medical students, and a valuable guide and counsellor for the practitioner to consult.

A Manual of Practical Hygiene. Designed for Sanitary and Health-Officers, Practitioners, and Students of Medicine. By W. M. L. Coplin, Adjunct Professor of Hygiene, Demonstrator of Pathology, and Curator of the Museum, Jefferson Medical College; and D. Bevan, M.D., Instructor in Hygiene and Clinical Microscopy, Jefferson Medical College: with an introduction by H. A. Hare, M.D., Professor of Materia Medica, Therapeutics, and Hygiene, Jefferson Medical College. With 140 illustrations, many of which are printed in colors. Philadelphia: P. Blakiston, Son & Co., 1012 Walnut Street.

Dedicated, as it is, to the laborers and students in the field of preventive medicine, this admirable work marks the dawning of a new era in medical thought and education,—the era of *preventive medicine*. It illustrates, in a scientific manner, the old adage that "an ounce of prevention is worth a pound of cure," and the work takes a stride in the direction in which the most important advances may be expected in the future, when the governments of states and municipalities will be censured by an intelligent people when they do not properly provide for the welfare of those committed to their charge.

Recent advances in the science of pathology have demonstrated most conclusively that the causes of the most dreadful scourges which afflict mankind can be successfully counteracted by certain remedial measures, if they are only applied in time. There is no book which is more welcome to the library of the medical man than the one before us. The information embodied in its pages is presented in the clearest and most acceptable form. The book is always easy to read, and at times the author is so carried away by his subject that his flow of language becomes distinctly eloquent. Every medical man should be familiar with the subjects with which this admirable book treats, as it deals with so many matters about which the average practitioner is too often profoundly ignorant. We are very glad to see the author take such a decided stand in regard to the contagiousness of tuberculosis and the means of preventing its ravages. Feeling so strongly on the subject, he is to be commended for devoting only half a page to the subject, which shows with what a master hand every topic has been treated. While the work will be of especial interest to medical men, it is so well written, and so unhampered by scientific terminology, that any one with a fair education can thoroughly understand its pages, and be benefited by reading them.

We are only too glad to welcome this champion of the cause of preventive medicine, and wish for it all the success possible in a new field of labor, which is destined to exercise such an important influence on the welfare of mankind at large.

A System of Genito-Urinary Diseases, Syphilology, and Dermatology. By various authors. Edited by Prince A. Morrow, A.M., M.D. With illustrations. Vol. ii. New York: D. Appleton & Co., 1893.

Morrow's second volume, beautifully illustrated and, barring the chapter on chancroids, devoted entirely to syphilis, comes to us with the promise of thoroughness and of scholarship but imperfectly realized in his first volume. After a careful review there is left a feeling of disappointment, not with the work as a practical volume adapted to the wants of the general practitioner, but rather because it cannot take rank as an encyclopædia and a book of reference for the specialist. This criticism in no way reflects on the distinguished editor, since he gave it to be distinctly understood that he was editing a practical system. The contributors to this volume are in the main well known. Charles Stedman Bull, Councilman, Fordyce, Hyde, Morrow, Sturgis, and J. William White are familiar names in genito-urinary surgery. No one who is familiar with the work of American writers on syphilology can fail to be surprised that the name of perhaps our greatest specialist, namely, R. W. Taylor, does not appear in this list. The sections in this work which are most deserving of

praise are Syphilis of the Skin, by Morrow; Syphilitic Affections of the Bones, by W. R. Townsend; Visceral Syphilis, by Councilman; Syphilis of the Eye and its Appendages, by Charles Stedman Bull; and the Treatment of Syphilis, by J. William White.

Morrow's article is noteworthy for its simplicity, directness, and comprehensiveness, and for the beautiful illustrations which accompany the text. The classification is simple and sensible, and the whole subject has been admirably summarized.

Townsend contributes a brief and able chapter on Syphilis of the Bones. He gives a number of carefully considered tabulations under the head of Differential Diagnosis. The portion of this article devoted to Treatment is perhaps the least satisfactory.

Councilman's article upon Visceral Syphilis approaches the subject from the side of the pathologist. The teaching is based on the most recent researches of specific lesions. This article, though brief, is thoroughly satisfactory. Diagnosis and Treatment receive brief mention, but this, considering the clinical course of these cases, is just.

Bull has dealt with the subject of Syphilis of the Eye with the knowledge which comes to the specialist, and with an appreciation of the needs of the general practitioner. His section is not unnecessarily cumbered by ophthalmic technicology.

White has contributed an exhaustive article upon the Treatment of Syphilis. The subject assigned to him is probably the most important of any in the entire work, and it has been handled most skilfully. While expressing his own preferences and treatment, full details are given of the various preparations and methods in recognized use. The treatment by hypodermic injection receives full consideration, and is rejected as a routine method on grounds which the great majority of the profession will concede to be well founded.

White lays down as the basis of the systematic treatment of syphilis the axiom that the essential point is the administration during a sufficiently long period of the largest dose of mercury which can be taken and absorbed without prejudice to the general health. He regards the condition of the mouth and gums as the only safe guide as to the full physiological effect of mercury, and continues his treatment in all about four years. His preparation of choice is the protiodide administrated in the form of pills, each to contain one-third of a grain. These are pushed until the gums are slightly touched, the dose is then cut down one-half, and is continued for two years, alternating, however, with a series of inunctions. The first inunctions are given at the end of three months. This series lasts over two weeks and then there is a return to the mouth treatment. This alternation is continued until the end of the second year, giving the patient twenty months' internal treatment and four months' inunction. When symptoms appear during tonic treatment by the mouth, a full dose is administered. This failing, the mouth medication is withdrawn, and ointments are substituted. If these fail, hypodermic medication is resorted to. The iodides are taken at about the end of the second year and are continued for six months. White's conclusion in regard to the hypodermic treatment is that it has not yet shown results which merit its adoption as a routine treatment in exclusion of or in preference to other methods, but, on the contrary, has some insuperable disadvantages and even dangers which render it improbable that it will ever be so adopted. The circumstances under which hypodermic medication should be employed he summarizes as follows:

(*a*) Those cases in which other methods of treatment have been tried and failed. (*b*) Those cases in which, owing to idiosyncrasy or intercurrent disease, the skin and the digestive tract cannot be used for the introduction of mercury. (*c*) Those cases in which, owing to grave and advancing lesions, rapid mercurialization is absolutely necessary. (*d*) Those cases in which obstinate localized lesions can be most directly reached by this plan. (*e*) Possibly those cases, referred to by Jullien, in which early

differentiation between syphilis and malignant disease, or tubercular ulceration, is extremely important, should be included in this list. The method should be employed in all doubtful cases which admit of it, particularly in those conditions of the tongue which often leave the surgeon for a considerable time in doubt as to their exact nature. Anything which promises to shorten this period of doubt by rendering the therapeutic test more rapid and more certain would be of great advantage. He recommends in such cases, however, potassium iodide by the mouth at the same time.

He also suggests that this treatment may be of service in forming an early diagnosis, since if a sore of an uncertain character rapidly cicatrizes under hypodermic injection of mercury, no local treatment being employed other than cleanliness, this will be strong proof of the specific nature of the lesion.

The book closes with a brief chapter by Martin on Chancroid. He leans to the belief that this lesion is due to a specific micro-organism, and holds that the bubo resulting from a soft sore is never chancroidal except by inoculation after it has been opened.

Although the reviewer expressed some personal disappointment on the quality of the work contained in this book, he is prepared to give it unqualified praise as a hand-book and reference-book for the general practitioner. Its teachings are conscientious, direct, and modern. It deserves and should have a wide circulation.

Essentials of Minor Surgery, Bandaging, and Venereal Diseases. By Edward Martin, A.M., M.D., Clinical Professor of Genito-Urinary Diseases, Instructor in Operative Surgery, and Lecturer on Minor Surgery in the University of Pennsylvania. Second edition, revised and enlarged, with seventy-eight illustrations. Philadelphia: William B. Saunders, 925 Walnut Street, 1893.

The wide usefulness and practical nature of this little book are sufficiently demonstrated by the need for a second edition. Dealing first with the roller bandages and their numerous applications the work treats of plaster-of-Paris bandages, adhesive plasters, antiseptic dressings, counter-irritants, depletion, fracture dressings, and venereal diseases. It is a thoroughly practical work, and should always prove useful to the student in acquiring the principles governing the science of surgery. A great deal of information has been crowded into a small space, and everything superfluous omitted, so that this little book may be considered thoroughly up to date in every particular, embodying in every sense of the word the essentials of the subject with which it treats.

The text-book of surgery by American writers has been drawn on very largely for a new set of bandaging-cuts, which enrich the text and add considerably to the clearness of the chapters on bandaging.

The Students' Quiz Series. Surgery: A Manual for Students and Practitioners. By Bern B. Gallaudet, Demonstrator of Anatomy and Clinical Lecturer on Surgery at the College of Physicians and Surgeons, New York; Visiting Surgeon to the Bellevue Hospital, New York; and Charles N. Dixon-Jones, B.S., M.D., Fellow of the New York Academy of Medicine and the British Gynæcological Society; Assistant Surgeon to the Out-Patient Department of the Presbyterian Hospital, New York. Edited by Bern B. Gallaudet, M.D. Philadelphia: Lea Brothers & Co.

This new addition to a most useful series is gotten up in a systematic and careful manner. It is freely illustrated, and cannot but prove of value to the student in reviewing the subject of surgery. The great tendency in the medical teaching of the present day is only too frequently to force the student to rush through the necessary preparatory work in such a way as to secure only the merest smattering of the subject, on account of the vast amount of material which he is required to learn. This

evil is best remedied by such works as these quiz compends. The part of this little book which refers to operations on the intestines is especially strong, and demonstrates very clearly this somewhat difficult subject. Those who depend upon compends altogether, to the exclusion of those books of reference which are within the reach of all, will, however, ultimately come to grief. Such books as the one before us should be used only in reviewing the subject and in preparing for examination.

Outlines of Obstetrics. By Charles Jewett, A.M., M.D., Professor of Obstetrics and Pediatrics in the Long Island College Hospital, New York. Edited by Harold F. Jewett, M.D. Philadelphia: William B. Saunders, 925 Walnut Street, 1894.

This book is prepared from a number of clinical lectures delivered at the Long Island College Hospital by Dr. Jewett, and is intended as an aid in the study of obstetrics in both the didactic and the practical work of a college course. It aims to give the student a knowledge of the outlines of the subject, so as to form a framework for general facts and individual experience. To those in attendance upon these special lectures the book should prove of the greatest usefulness. To the busy practitioner it will prove a work of reference easily consulted, modest in its scope, and thoroughly reliable as far as it goes.

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Ybarra, A. M. Fernandez de, Review of Italian, Spanish, and Portuguese Medicine, 103, 198, 294, 389, 485, 584, 681, 777, 877, 970, 1062, 1162.
Yeo, I. Burney, M.D., A Manual of Medical Treatment, or Clinical Therapeutics (Review), 973.

END OF VOLUME II.

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